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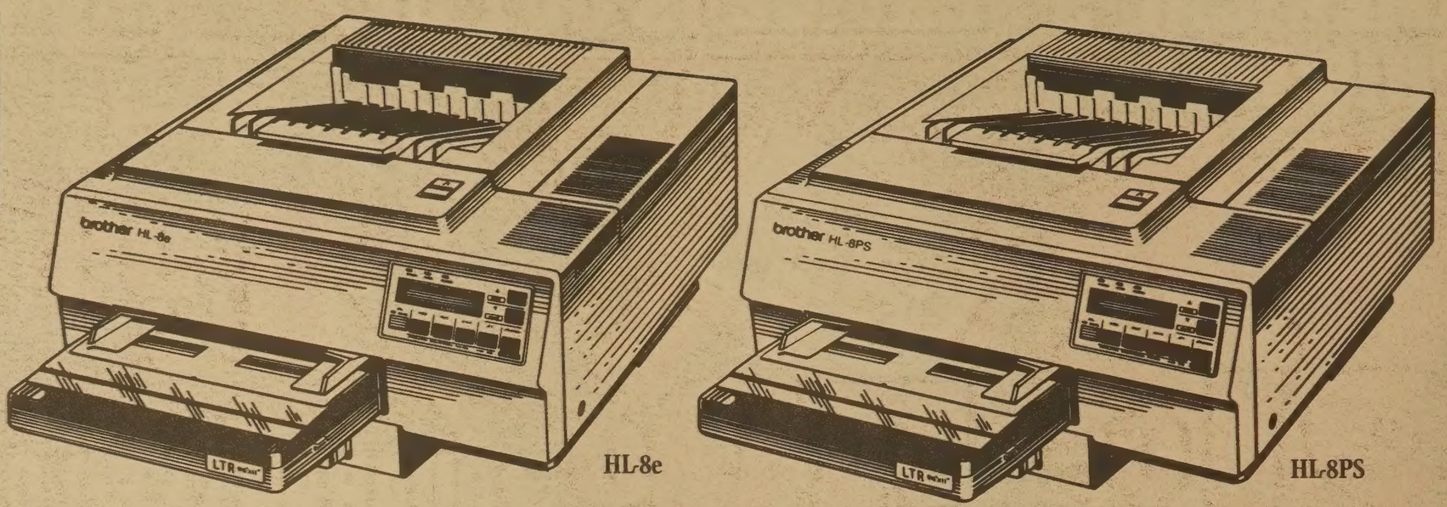

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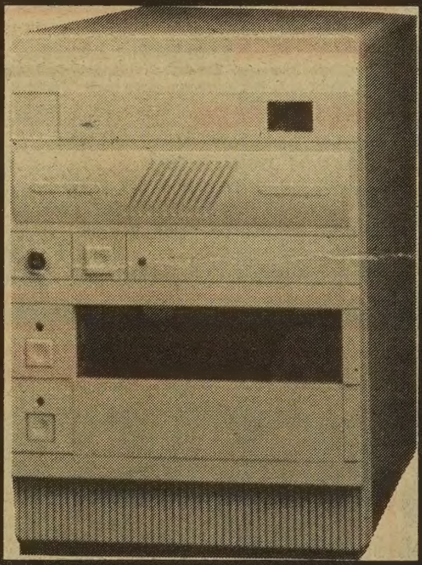

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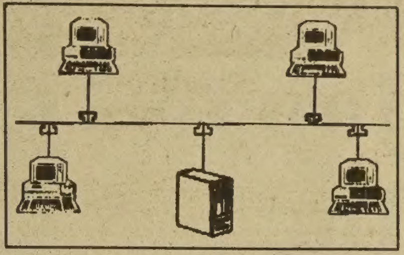

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MICROTIMES™

COVER STORY

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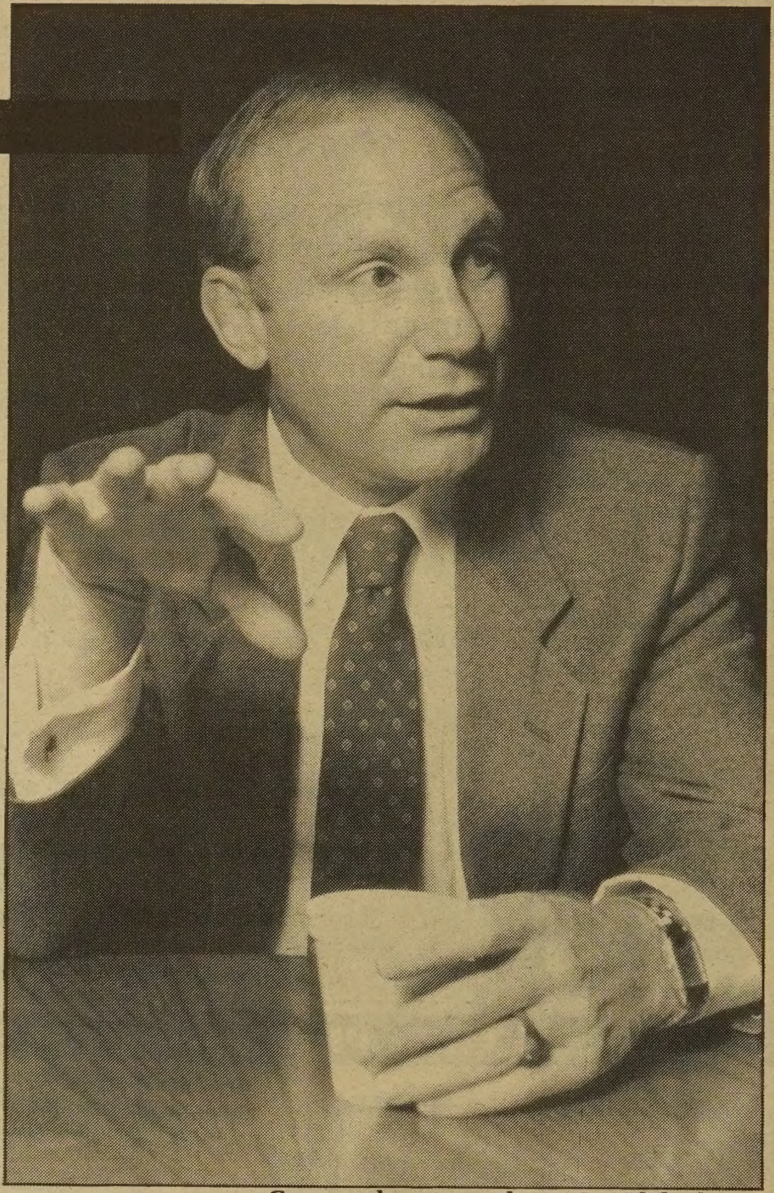
Japan Inc.:

Not What You Think?

Fujitsu Thinks Globally, Acts Locally

By Mary Eisenhart
An interview with Michael Gluck of Fujitsu's Computer Products Group, focusing on Fujitsu's transformation to a global company, the benefits of cross-cultural influence, and the company's operations as an American company now exporting disk drives made in Oregon.



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EVEREX STEP 386is

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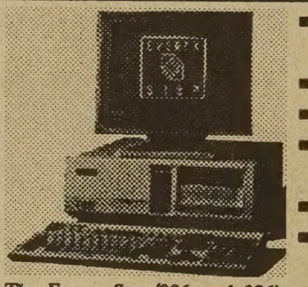

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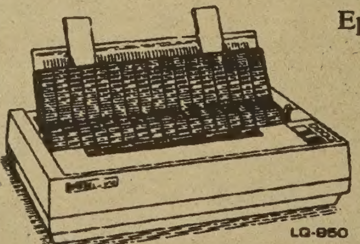

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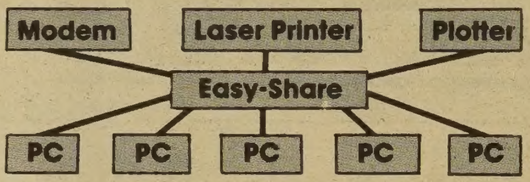

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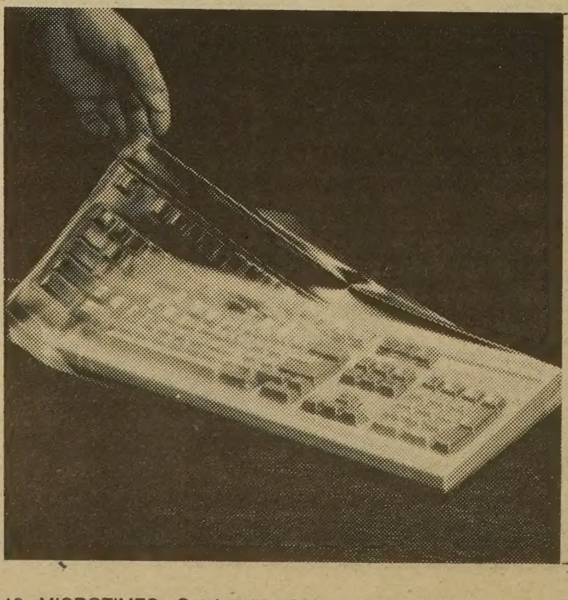

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LETTERS

Reader Declines To Assume Lotus Position

In the fine print of the order form for releases 2.2 and 3 of *1-2-3*, I discovered that Lotus has outdone itself. It has thought of yet another way to "screw the user." The document states, "Within 90 days of receiving your upgrade, you must destroy all your remaining *1-2-3* disks, both originals and backups."

By asking users to convert completely in 90 days, Lotus shows its lack of understanding of them. Many who need release 3 for new applications have old ones dependent upon add-ins. The add-in writers will require months to debug their products under the new release. What does Lotus expect such users to do in the meantime? Not run their old applications? Rewrite them under release 3 to eliminate the add-ins? Pay full price for release 3?

Though Lotus claims compatibility of version 2.2 with 2.01, I will believe that claim when I see it. A year from now, I expect Lotus to be working on incompatibilities arising from unforeseen circumstances. Users going to release 2.2 have no reasonable expectation that, in 90 days, they can throw away 2.01.

In accounting applications, many conditions do not arise until the end of the year. What does Lotus expect users to do who discover, in their end-of-year processing, that they need their earlier release?

Moreover, in any kind of applications, audits and lawsuits can require reruns of old data years later. Users must be able to archive both data and the programs which processed or created the data.

This problem has arisen before. From day one of software, software producers have released new versions of programs incompatible with prior ones. Software vendors have not objected to users' running old releases of software if they could not economically convert old applications or otherwise needed the earlier releases.

Lotus's demand is unreasonable and unworkable.

Bob Clark, Jr.
Los Angeles

Shareware Clarification

I am writing in connection with the letters in the July 7 *MicroTimes* under the heading "Shareware: Still A Few Bugs In The System." Both some of your readers, and the editor who answered, seem to have some misconceptions about the function of the ASP Ombudsman.

The Association of Shareware Professionals is an organization of authors, with vendor associate members, pledged to meet certain standards which should make end users' shareware experience more pleasurable. The Ombudsman is available to answer complaints about ASP members. He will not normally give out information about complaints, since either the complaints are resolved or the board of directors of the ASP will take action to remove the member who violated the rules.

Alas, there is very little that ASP can do about authors who are not members of the ASP. In particular, we cannot provide a kind of Better Business Bureau for shareware, acting as a clearinghouse for all shareware complaints.

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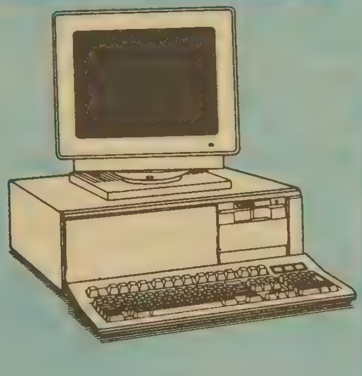

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LETTERS

The best guideline for users concerned about shareware is to look for the ASP logo in the documentation files that they download. They are then guaranteed a program that will not be crippled, and support when they register, including acknowledgement of registration. While it is not required that authors provide support for non-registered users, you will find that most will respond to queries from users evaluating the programs.

Barry Simon
President, Association of Shareware Professionals
Los Angeles

Even More About Computers And Schools

I am disappointed with the editors of *MicroTimes* for publishing the political propaganda (Letters, August 8, 1989) of one Ed Foglia, mouthpiece of the California Teachers Association, with whom I am personally acquainted. The article "Public Education: The Other Side" was ostensibly written in response to a column by Jim Warren, with whom I am also personally acquainted. The subject relates to computers in the public schools.

My acquaintance with Mr. Foglia came in 1979, when I was the proponent of a voucher initiative known as the "Hickey-Canfield Performance Voucher." That initiative measure, which would have amended the California Constitution, was written by me after extensive research. That research uncovered efforts by computer giants in the early 1970s to bring computer power to the classrooms of America. The particular program was known as "Performance Contracting" and was supported by the Office of Educational Opportunity. The bottom line is that the effort was "shot down" by the teacher unions, such as the one which Mr. Foglia has represented for many years.

Since this is, for the most part, a computer publication, I would like to close with mention of a feature allowed by the "Hickey-Canfield Performance Voucher" relating to computers. Simply stated, since the how, where, why, and when of the educational process was not restricted by the "Hickey-Canfield Performance Voucher," parents would have been allowed to secure computers and educational software with their vouchers. The only condition was that nobody gets paid from the voucher until Mary and Johnny learn to read, write, and cipher. That's an accountability which the CTA and NEA are loath to accept.

John J. "Jack" Hickey
Redwood City

Return Of The Glaring Error

It has come to my attention that *PC Week* was mentioned on your "Letters" page in the August 7 edition, page 12. While we appreciate the mention of our publication, your reference is incorrect.

In the second paragraph of this section the sentence reads "It has been suggested by various respondents, as it was suggested to David Bunnell of *PC Week* when he wrote his famous Atlanta editorial..." Well, Mr. Bunnell works, I believe, for *PC World*, and years back for our sister publication

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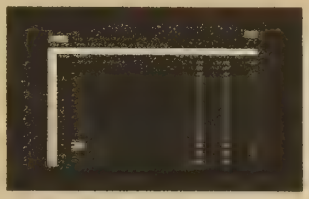

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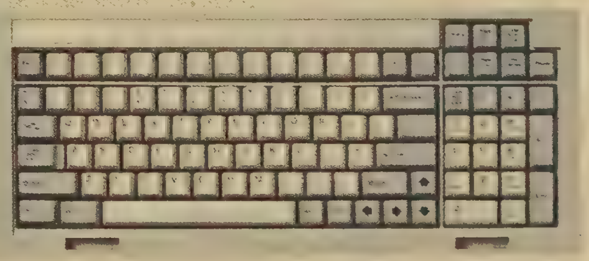

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LETTERS

(before it was our sister publication), *PC Magazine*, but he never worked for *PC Week*.

I and the other editors at *PC Week* would appreciate a correction of this statement. We don't mean anything derogatory towards Mr. Bunnell; we just don't want to confuse your audience.

Elli Holman
Associate Executive Editor
PC Week

The facts are exactly as Ms. Holman states them. We are thoroughly embarrassed by this lapse, and anxious to correct it.

Mr. Bunnell's editorial appeared in PC World, *of which he was editor-in-chief at the time. His current venture is Io Publishing.*

Our apologies to PC Week, *Ziff-Davis, Mr. Bunnell, and all the people who have been confused by the incorrect attribution.—eds.*

The MicroTimes Global Village

I would like to renew my subscription to your publication, *MicroTimes*. The second subscription year has been just as rewarding as was the first.

The only improvement which I would like to see would be more software reviews. I have purchased quite a number of products from companies who advertise in your publication; the most remarkable of these being *INFOXL* from Valor Software. This product was purchased on the strength of your review.

J.S. Lake
Auckland, New Zealand

More On Student Stackware

I wanted to offer a slight correction to Birrell Walsh's article on the Mac Lab at the International Studies Academy. The computer literacy course I teach there is a one-semester course, rather than the one-year course reported. The students work hard to fit it all in.

The students who produced the stacks you printed were thrilled to see them published and thank you for paying attention to the good things happening in the schools. The work of these (and other) students attests to the belief that if you give a student the tools, show him/her different ways to use them, and get out of the way, wonderful things can happen. High and clear expectations help.

Perhaps one or two of your readers might consider hiring one of these students?

Ted Barone
International Studies Academy
San Francisco

We'd like to know what you think. Whether it's feedback on one of our articles, your views on industry issues, or a problem you'd like to bring to the attention of our readers, we want to hear from you. We invite letters to the editor via US Mail at 5951 Canning Street, Oakland, CA 94609, or via fax at (415)652-4618 or (213)467-5486. Please send electronic mail to **microx** *on The WELL (415)332-6106,* ***{pacbell, hplabs, ucbvax, apple}!well!microx*** *on uucp, and* ***MICROTIMES*** *on MacNET.*

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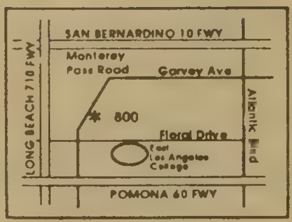

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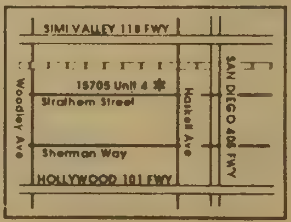

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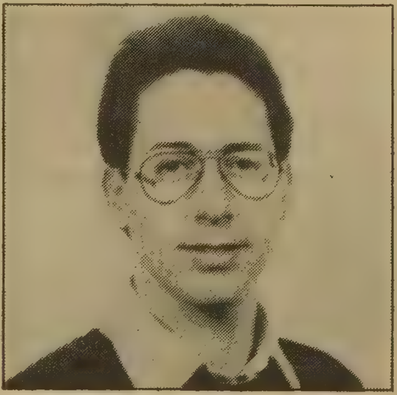
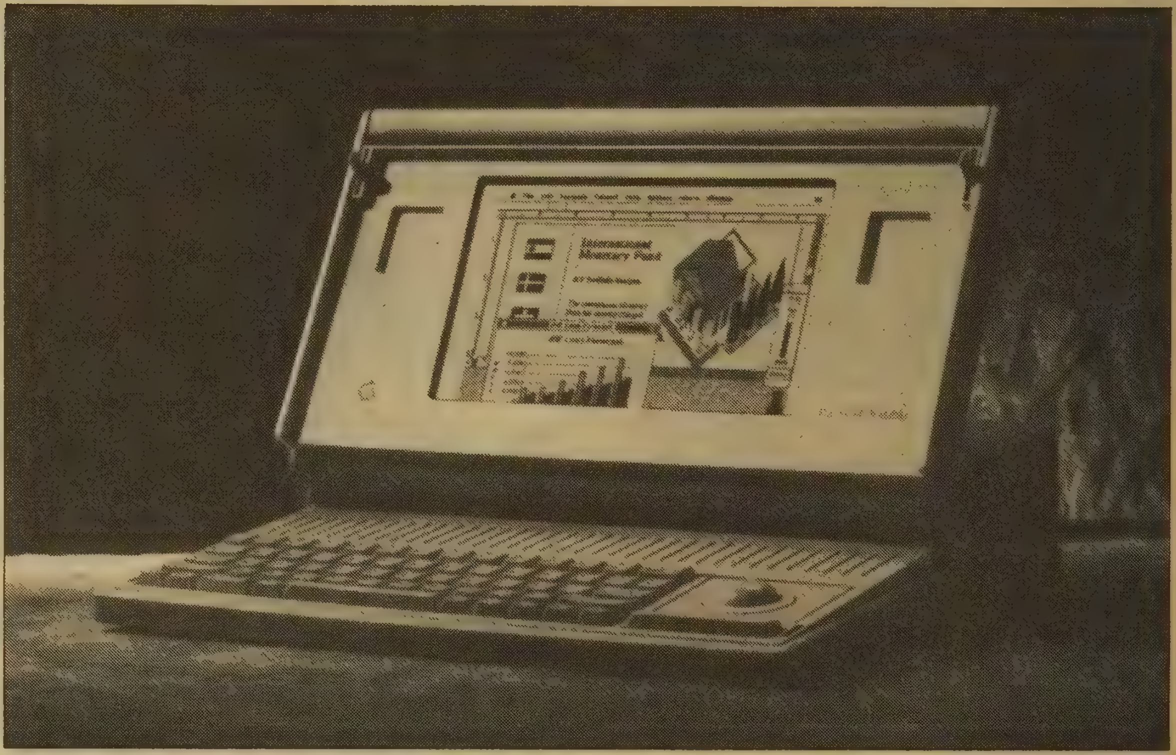


Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

Font Wars, New Macs, NeXT Shipments Etc.



Apple's long-awaited Mac portable finally arrives.

Font Wars Break Out, Causing Surprising Alliances

Apple and Microsoft agreed last month to share font and printer technology in an effort to break Adobe's stranglehold on the scalable font market. The agreement allows Microsoft to use Apple's new scalable font technology in its operating systems in exchange for Apple getting to use Microsoft's PostScript-compatible printer driver.

Although many companies have come up with scalable font technologies to compete with Adobe, no one has been able to convince many users to go with a particular system. When Apple announced in May that it was breaking with Adobe in the next major release of its system software, many people were skeptical that it could make a big inroad without support for the fonts on PCs. Microsoft's announcement that they would use Apple's standard in OS/2 gave Apple a huge boost in the acceptance of its font technology.

The announcement is not a death knell for Adobe, but it certainly is a slap in the face. Adobe has made sizable profits over the past few years by charging high amounts for PostScript drivers for printer manufacturers and by preventing font companies from creating high-quality PostScript fonts that compete with Adobe's retail font packages.

Although anyone can easily design a PostScript font, the font often does not look well-proportioned at sizes smaller than 10 points on a standard 300 DPI printer. Adobe's look good even in very small sizes, due to "hints" that it builds into its fonts. Adobe steadfastly refused to tell its competitors how to create those hints. This, in turn, made large manufacturers like Apple nervous, since there was a distinct lack of competition in the font field.

The agreement between Apple and Microsoft is not a death knell for Adobe, but it certainly is a slap in the face.

When Apple announced that it was moving away from PostScript and into its own font technology, it made clear that the new technology would contain "hints" in a very open fashion. Any font company could make their fonts look as good as any other. When Microsoft announced support for Apple's font technology for OS/2, it indicated that it wanted a common font format across computer systems. It is not excluding other font systems from OS/2; in fact,

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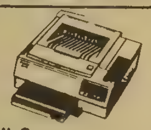

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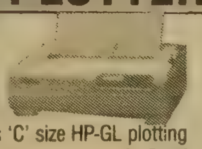

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any manufacturer can program a font system replacement if they want. However, it is very unlikely that any of these will catch on. IBM's Nick Donofrio, Vice President for the Advanced Workstation Division, said that IBM will use the Apple fonts in OS/2.

After the announcement, company leaders got pretty testy. At a speech before the Seybold Computer Publishing Exposition, Adobe president John Warnock called the agreement "garbage." He clearly saw his lock on the market loosened and was visibly shaken during the speech. He further promised to release the specification for hints in PostScript fonts within six months. That announcement (not the Apple/Microsoft agreement) caused Adobe's stock to plunge as investment advisors worried that, without the proprietary technology, Adobe's stock would not hold up in the long run. Steve Jobs, president of NeXT and its most vocal industry supporter, made fun of the alliance but offered no reasonable solution for the two companies.

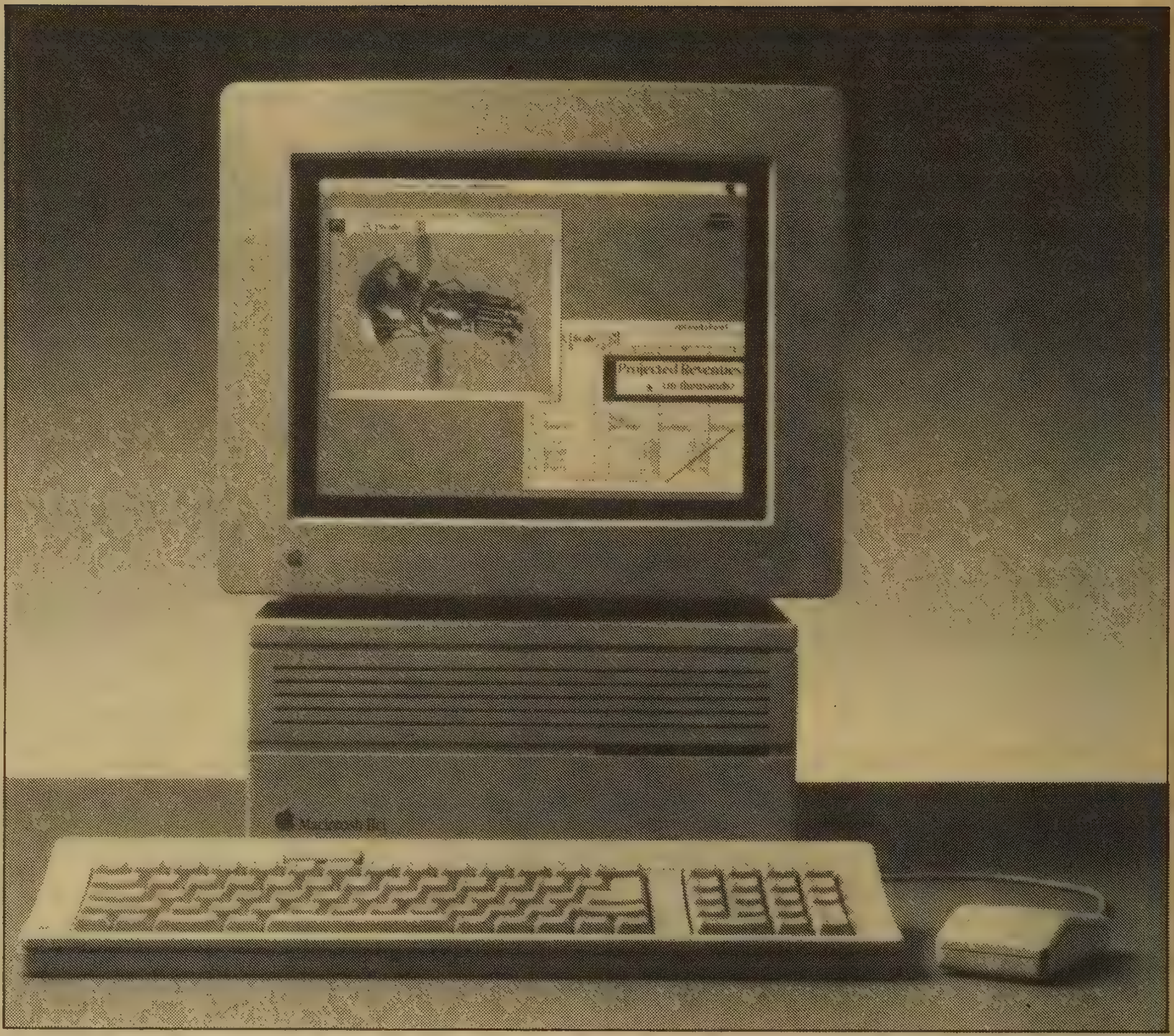
As Microsoft president Bill Gates pointed out after Warnock's response, "The world went from zero open formats to two." Given that none of the current PostScript printers will be converted to ones that handle the new font format, there is no doubt that PostScript or Adobe will be around for a long time. Also missed by many people was the fact that what Apple got out of the deal is a PostScript driver that uses the Apple font format. This means that Apple will be able to continue to make PostScript-compatible printers at the same time as they make printers that support QuickDraw, and have both printers use the same fonts.

Clearly, Adobe will suffer, especially given Warnock's response. (He also reneged on his earlier agreement to convert Adobe fonts to Apple's font format, causing many people to worry about Adobe's future direction.) Although some users worry about how the conflicting standards will affect them in the short run, in the long run it is clear that the second standard will cause many more high-quality fonts to be available at much lower prices and that more computer systems will be able to achieve true WYSIWYG text handling.

Apple Releases Luggable And Fastest Macs

As everyone expected, Apple unveiled two new Macintosh computers last month at a glitzy reception broadcast over two satellite bands. The two new computers, the Macintosh Portable and the Macintosh IIci, are at opposite ends of the power spectrum.

Most people were disappointed with the size and weight of the Portable, not to mention its high price. It is clear that Apple is only trying to seed the market with a portable that is a true Mac, and is not serious about competing with portable PCs. The IIci drew rave reviews for its speed and the fact that it works with the current hardware peripherals available for the Mac II line.



The Mac IIci is the fastest Mac available.

To its credit, the Portable has the clearest, fastest screen available on a small system. Apple used the very new active-matrix liquid crystal display (AM-LCD) for the portable, after finding that none of the screens commonly used in PC portables updated fast enough or gave enough range of vision for a Macintosh. As PC portable users have discovered, any image moving quickly across the screen (such as the mouse pointer) often simply disappears on most screens. The AM-LCD is almost as sharp and fast as a standard Mac screen, making it less tiring to use than other portables. It also has more pixels than the standard Mac screen (640 x 400, compared to 512 x 342). The new screen, however, was the biggest factor in the Portable's high list price ($5,799, or $6,499 with a 40 Mb hard disk).

The portable runs at 16 MHz, approximately twice the speed of a Mac SE. Its standard configuration includes 1 Mb of low-power static RAM (which can be expanded). A novel addition to the Portable is a special power-saving circuit. When the Mac determines that the user is not being very active, it slows the CPU down to 1 MHz and shuts off power to the other components. This significantly extends the time needed between battery charges. Apple introduced yet another slot design for the Portable, and many third-party developers said that they will support it with peripherals if sales of the Portable are reasonable.

Many dealers are worried about the Portable, since it has the now-famous and always-ridiculous 90-day Apple warranty. Given that this is a new piece of hardware with a completely different manufacturing process than Apple is used to, it is likely that many glitches will arise. In fact, two of the Portables that Apple was showing at the Seybold conference went dead unexpectedly. Although Apple offers an extended warranty (as with other Apple hardware), the cost is high and very few people buy them. Dealers are worried that there will be a high failure rate that Apple will pretend does not exist, similar to its reaction to the widely-reported crashes of many of the hard disks in its SE/30 and IIcx systems. If the Portable gets a bad reputation for reliability, dealers could be stuck with inventories.

The IIci is not without its own innovations. The IIci looks pretty much like a IIcx. It has a 25 MHz 68030 CPU and a 68882 math coprocessor. Internally, it is different from other Macs in that it has special support for the burst-mode RAM access of the 68030, a built-in video circuit for Apple's monitors, and an expanded 512 K ROM which contains instructions for the new hardware. The system is also Apple's most expensive, costing $6,269 without a hard disk and 1 Mb of RAM, and up to $8,669 for an 80 Mb hard disk and 4 Mb of RAM.

As the IIci takes over the high end of the Mac II spectrum, Apple also announced the demise of the original II. Although it is still available in some stores, Apple president John Sculley said that the II is no longer being manufactured and has been phased out of Apple's plans. Current Mac II users shouldn't worry, however, since the cards the II uses are the same as those for the other systems in the II family; so many IIs have been sold that there will be a strong aftermarket for II hardware for many years.

Tiny Portable Draws Low Watts, Lots Of Interest

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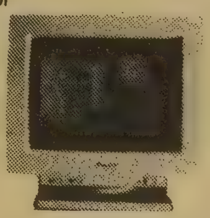

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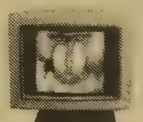

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NEWS AND ANALYSIS

low power consumption, however, is speed. The computer uses a slow 80C88 for its CPU and has a slow-refresh screen. The cramped keyboard with ultra-low travel keys will also be a hindrance to many users. The computer will cost $2,000 when it is available in the next few months. (Incidentally, Poqet is pronounced like "pocket": isn't that adorable?)

The new computer comes with 512 K of RAM available to programs. It also has 640 K of ROM, which includes MS-DOS 3.3, BASIC, and five basic applications (notepad, calendar, address book, calculator, and terminal program). Since it has no disk drive, the computer has two slots for more RAM or software applications on ROM cards. These cards are about the size of a credit card and can contain any type of application. Manufacturers announcing support for the new card include Lotus, WordPerfect, and XyWrite. Since these programs are already loaded into ROM, they have much more RAM free than they would on a standard PC. Traveling Software also announced that it will offer a program for transferring data to and from a Macintosh. You can also buy an external 3.5" floppy drive that uses its own batteries for $400.

The Poqet looks very different from any other portable. In order to get all the necessary parts into a computer that small, Poqet had to completely redesign many parts of the standard PC. In fact, Poqet has applied for 15 patents on the new technology it incorporated into the portable. Many of the patents are for the power management technology in the computer. The screen takes only a small fraction of the power needed for other portable screens. Poqet expects the system to be used by people who are often away from their primary computer and want to perform standard computing functions such as word processing and data entry.

NeXT Finally Ships System Software; Begins Volume Computer Shipment

The NeXT computer is real, its operating system is real, a small number of applications for it are real, and the interest in the system is very real.

NeXT shipped the final version of the operating system last month and upgraded all the current owners of the system. At the Seybold conference (see below), the NeXT booth was quite busy, as was the demonstration area that NeXT had set up to show the NeXT computer running Frame Technology's *FrameMaker* desktop publishing software. When the NeXT computer was announced a year ago, NeXT president Steve Jobs said that the final version of the operating system would be ready early this year. The delays were due to problems with speed and compatibility with the NeXT printer.

The final version of the operating system was

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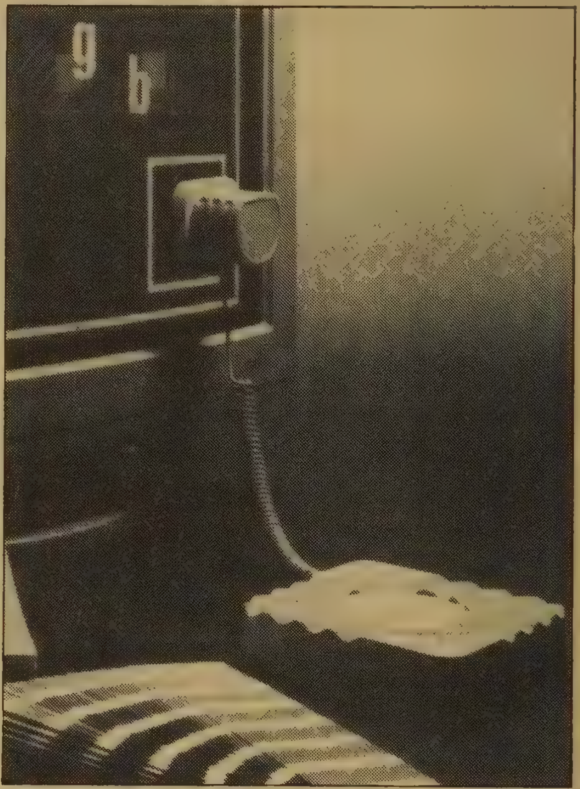

The Radius PrecisionColor device allows true WYSIWYG Pantone colors.

somewhat of a disappointment to many, since it did not fix many of the speed problems that had plagued earlier versions of the operating system. Window updates are particularly slow on some graphics operations, and printing is still sluggish. At the Seybold conference, users could test *FrameMaker* on the NeXT machine, high-end Macintoshes, and Sun systems. The comparison was significant, since the NeXT machine was significantly slower at updating the screen than on the other systems. However, the NeXT system reacted quicker to user typing.

On the positive side, NeXT is shipping the operating system with more programs than were initially announced, and the new applications will especially please the academic market. NeXT is including *TeX*, a text formatting package popular with scientists, as well as new programming tools.

It is not clear if the NeXT system will catch on in its current configuration. NeXT says that the system should appeal to people who need UNIX workstations but are daunted by their complexity. However, you can put together an 80386-based business workstation running XENIX for much less than the NeXT system and still run ever-popular MS-DOS programs. Window updating is a problem on all graphically-oriented computers, but NeXT now has significant competition from workstation companies who are lowering their prices on bottom-end machines. For instance, Sun has many workstations, running thousands of applications, that cost less than the NeXT system.

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Seybold Computer Publishing Exposition Roundup

Computer publishing has come of age, and the annual meeting of vendors of computer equipment and software for the publishing industry has grown more homogeneous. The announcements at this year's Seybold Computer Publishing Expo in San Francisco were quite mundane relative to those a few years ago, mostly due to the growth of the industry. Manufacturers announce new products all year at other shows, since computer-assisted publishing has reached into every major company.

Surprisingly, one of the industries least receptive to it has been the traditional magazine and book publishing industry; most of those publishers still lay out type and art by hand.

The show had only a few highlights. Sure, there were dozens of new laser printers and large monitors shown, but how many virtually identical products do you want to see? As it has matured, most of the desktop publishing software that runs on PCs and Macintoshes has also become indistinct. This, of course, is good for the end user, since improvements in one product tend to appear quickly in other products, but it makes for a fairly boring show.

Many of the estimated 15,000 attendees at the exposition wanted to get some hands-on experience with the products. This is understandable, since publishing programs are often much more expensive than standard applications, and since publishers and graphics artists are not known for being rich. NeXT set up a separate training area: 18 NeXT systems running *FrameMaker* with people following an instructor at the front of the area. Nearby, the management of the conference and Personal Training Systems (who make training tapes for a variety of Mac products) had 30 Mac SEs set up with people listening to PTS training courses on tapes. Both areas had waiting lines and got rave reviews from attendees who felt that they couldn't get much from the salespeople in the booths.

The most exciting announcements of the three-day show were the Radius PrecisionColor calibration device for Radius and Apple display cards and Tektronix's *TekColor* fidelity system, both for the Macintosh. One of the biggest impediments to preparing color art on a computer is matching the color displayed on the screen with the color that comes out of the printing process. There are many standards for describing printed color, but there has been no way to assure that what you see on the screen would be exactly what you would see coming

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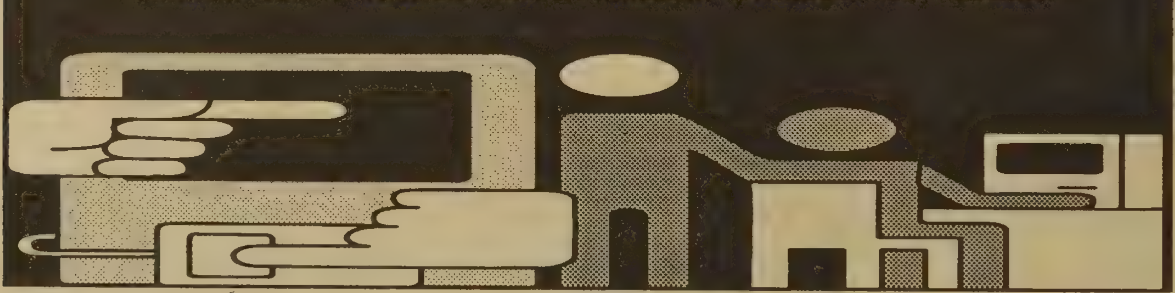

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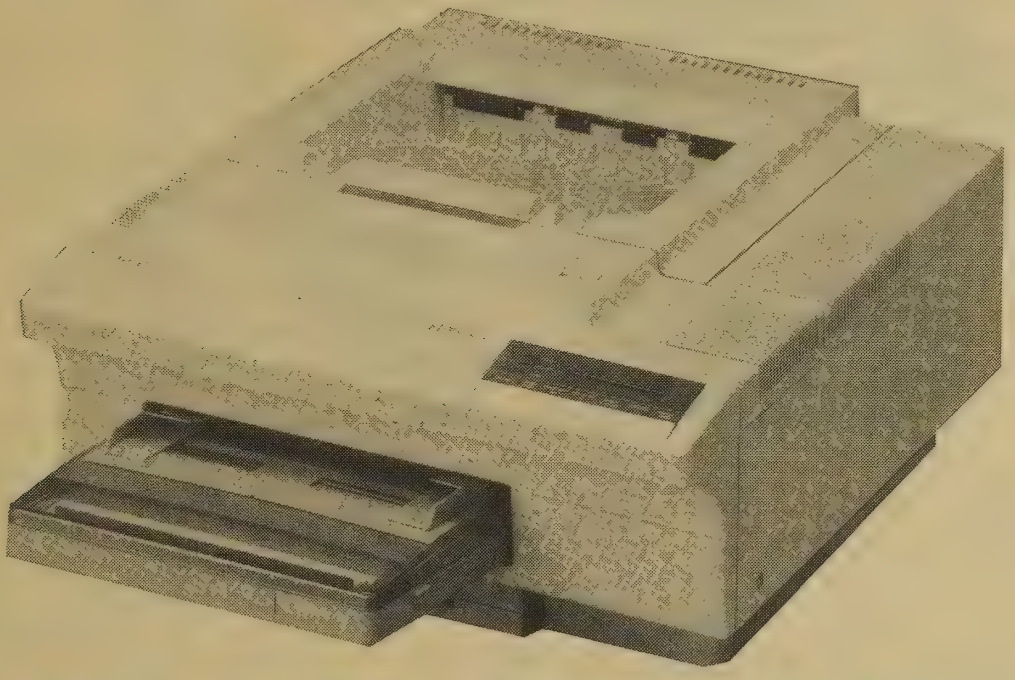

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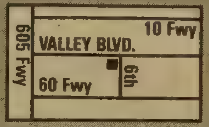

NEWS
AND ANALYSIS

out of the printer. These two devices differ in the system they use for describing the colors and the intended audience.

The Radius PrecisionColor system calibrates the Mac screen and applications to the popular Pantone color-matching system. Most commercial printing houses use the Pantone system for mixing colors for presses. The PrecisionColor device changes the output specifications of either Apple or Radius color graphics cards to match a pre-defined spec. The device is a suction cup with a light collector that you place on the screen while running a small Control Panel device. After you have calibrated a system, you are assured that a specified Pantone color displayed on the screen will look the same on all calibrated screens. Since many major Macintosh applications are licensed by Pantone to use the color system, an artist using an application that is displaying a Pantone color can be assured that the color on the screen is virtually identical to what they will see when the image is printed. As more software manufacturers adopt the Pantone system and use the Pantone color drivers, artists will be able to transfer color images between programs and be sure that the colors will remain exact and, after calibrating with PrecisionColor, will look the same on the screen. The PrecisionColor system will cost $700 and will be available next month.

Tektronix's *TekColor* works very differently from PrecisionColor. *TekColor* is an all-software system that relies on screen and printer manufacturers to support it. If a manufacturer supports the open specification (which is based on the CIE standard), a Mac user who purchases the $50 package can be assured that the colors on one device will match the colors on another. This means that to get identical colors on both the screen and the printer, both devices must support the *TekColor* standard. For now, the only device that directly supports *TekColor* is Tektronix's own ColorQuick ink jet printer, although Tektronix is including a database of the common Mac monitors in their optimal state. An interesting benefit of the *TekColor* system is TekColor Picker, a replacement for the Apple Color Picker Control Panel device. The TekColor Picker uses Tektronix's patented system for compensating for faults in human vision. For example, people normally see brightness differences in colors that are technically the same brightness, and the TekColor Picker adjusts for this.

White House Proposes Higher-Speed Computers, National Network For Researchers

Universities and government research labs should be supplied with access to supercomputers and an ultra-fast national network, according to a report from the President's Office of Science and Technol-

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ogy. The report is a recommendation for a five-year strategy, not a proposal backed up with a budget, although the report suggested spending $2 billion for the enhancements.

The National Research and Education Network would be similar to (and possibly built on top of) the Internet, a high-speed network that links almost every university with commercial and government sites. The stated purpose of the network is to allow easy and instantaneous distribution of information between research sites, although it may also be used to share computing resources. With a budget, the proposal can only be used as a guideline for future projects that have real funding.

Sun Opens System Bus To Other Manufacturers

Not really expecting anyone to forsake the MCA or EISA buses for its own, Sun Microsystems announced that they will let anyone see the spec to their internal SBus for free, hoping that other manufacturers adopt the very fast peripheral bus and thus make more cards available for it. The SBus can transfer data at up to 80 Mb per second, more than twice as fast as the NuBus used in Macintoshes or the MCA and EISA buses used in PCs. Another advantage of the SBus is its ability to directly access data in segments larger than the physical memory of the computer. Sun will sell a developer's kit and make available chips for connecting SBus cards to the bus.

Sun hopes that other workstation and minicomputer companies adopt the SBus so that more peripheral manufacturers make cards for it and so that the cost of those cards drop. Sun stressed that another big advantage of the SBus is that it can coexist in a computer with other buses. Thus, if a manufacturer has its own bus but wants to take advantage of some of the cards that are already available for the SBus, it can include some SBus slots in the computer without affecting its own bus. Sun claims that over 100 vendors have expressed interest in the SBus standard.

Worst Press Release Of the Month

This month's award goes to HeadStart Technologies and their PR firm HWH Enterprises. Who needs good grammar when you have technobabble? To quote, "A brand new family-oriented computer is about to be introduced that will literally change the way we interface with these information systems. Brought to you by HeadStart Technologies, this new product is the first major computer introduction from parent, North American Philips Corporation, makers of Magnavox, Philco, Sylvania, and Norelco. Star Trek's Leonard Nimoy is your host." ■

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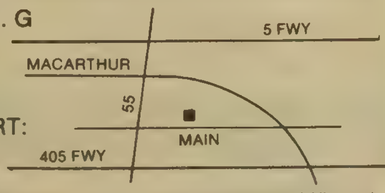

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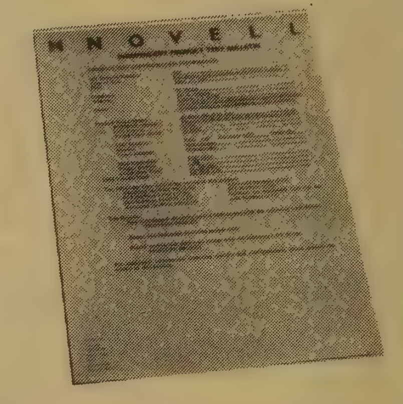

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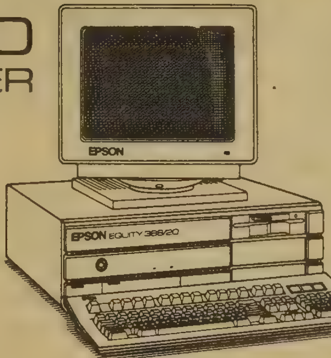

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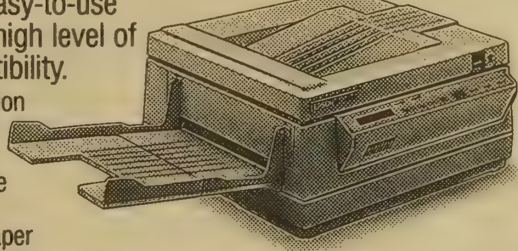

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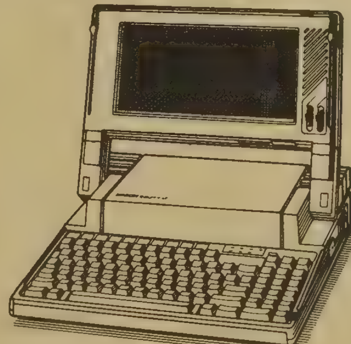

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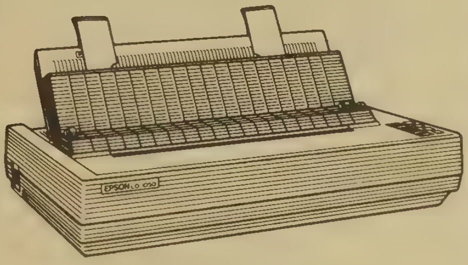

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REALIZABLE FANTASIES • BY JIM WARREN

Fax And Beyond

This proposes continuing conversions of the present into our futures—offered for technocrats' titillation and entrepreneurs' entertainment.

Fax, Revisited

In the September issue, I passed along Kenneth Clark's proposal that fax modem-boards could double as very inexpensive, very fast modems for general data transmission—especially given their robust, standardized, error-correcting and speed-adjusting abilities.

But there's more!

It's a modem! It's a scanner! It's a printer! It's "OMNIMAGE!"

Mark Stobbs of San Francisco logically extended Clark's idea (now, why didn't I think of this?): Fax machines are available for $600 up. They already have a modem—and a printer and page scanner. So, let's use 'em as a near-omnipotent microcomputer peripheral for users with low-volume hardcopy needs.

With minimum interface mods and support software, current fax machines could be a single, quiet, fast, plug-in box that is a printer (at 200 DPI or maybe 300 DPI), plus scanner for page-image input, plus modem. They could also double as fax units in their spare time (personal computer and fax users often have no need to dedicate a phone line and fax machine for their rare fax communications).

John Kahn of Santa Clara also suggested: Let's use a (color?) photocopier as a copier, laser printer, full-page scanner for computer-input and fax I/O.

Note: There are "only" several million non-business personal computer owners who would have a likely interest in such an omni-peripheral.

Modems For Data AND Voice

While we're modifying modems' modalities, let's add connections for a microphone and speaker, and a (cheap!) CODEC speech processor chip. With simple software utilities, we could then process digitized speech, as well as digitized images and data. Speech could be locally stored, or received and sent via modem connection—including transmission as multiplexed "voice over data" on faster modems.

Copyright © 1989 by Jim Warren. All rights reserved. Jim Warren founded the West Coast Computer Faire, the Silicon Gulch Gazette *and* Infoworld *newspapers, Video Initiative and the DataCast proposal for broadcast-based paperless electronic newspapers utilizing personal computers. He was the founding host of the PBS* Computer Chronicles *series, founding editor of* Dr. Dobb's Journal, *and founding president of the Microcomputer Industry Trade Association.*

Consider the possibilities: Local storage on disk allows "voice mail." Voice-over-data greatly enhances computer-assisted collaboration when the participants are geographically dispersed.

For such group efforts and discussion, voice-over-data allows using a single phone line simultaneously for voice and for the data being shared and discussed. That reduces or eliminates the need for two phone lines (voice, data) and conference-call complexities in such applications. (Get the Bell out of there!)

Also, consider its uses in the massive BBS world—where communication and help is usually now limited to a single stream of typed text per terminal/modem.

Data-Plus-Voice Design Tidbits

For the microphone and speaker, let's just provide a standard telephone minijack and associated electronics. Then, anyone could plug in any phone — including a speaker phone.

I seem to recall—from some venerable Stanford electronics course—that unconditioned residential phone lines were optimized for about 3 kHz—meaning that a 2400-baud modem should be able to carry intelligible speech, if the speech—presumably intermittent—is given priority over data. And 9600-baud modems can easily multiplex speech and data, with simple protocols in software.

There are numerous speech COder-DECoder chips readily available, cheap and reliable due to wide use in telephony. Aside: Reputedly, Sun's SPARCstation 1 UNIX workstation already includes a CODEC—and most, if not all, of the other hardware just proposed. So, to prototype/implement this proposal, perhaps all you need to do is get one and add software. It's "only" $10,000—but, for 8 megs, plus UNIX, plus more horsepower than a high-end 386, it appears to be one of the best deals around.

Michael Slater, the editor of the insiders' invaluable *Microprocessor Report*, provided some helpful pointers on this proposal.

Groupware Addenda

Robust groupware systems should:

- Allow the system administrator to permit anonymous or penname input/comments by participants. (Dislike unidentified sources? Please note that the *Federalist Papers* were written entirely under secret pennames—and are considered among the most important documents in United States government and history.)
- Allow one-to-one note-exchange and private communications in the midst of geographically-dispersed group "discussion." This is the analog of the often-essential practice of two participants in a group having a whispered exchange on the side.

Legislative Access, California Style

My last column suggested that machine-readable versions of the state Constitution and statutes be available at consumer prices. This prompted some input from a highly-placed legislative staffer regarding citizen access to legislation in progress:

It appears that the Legislature has a computerized Information Service containing bills in progress, documents from committee meetings, amendment history, committee minutes and voting records, plus the Constitution and statutes.

It runs on an IBM mainframe, accessible to a huge number of legislative aides, workers, etc. Although there are extensive safeguards against tampering, citizens and groups interested in such information cannot access it directly. They must contact some legislator or aide and ask them to spend time pulling desired information—reputedly a common request consuming considerable staff time.

Reportedly, some legislators are wildly opposed to allowing the public full read-only access to this information—and their opposition isn't the slightest bit concerned with potential harm to the system or data.

(I keep saying, "Knowledge is Power!")

Also reported: The Assembly has its own extensively utilized statewide DECnet connected to numerous PCs and Macs. On the other hand, the State Senate has terminals tied directly to the IBM mainframe, and Senate workers find using it often difficult and infuriating.

Industry Heavyweight Comments

In late September, a 747 blew three or four tires upon touchdown at SFO—no human harm, but definitely bumpy.

Ted Nelson was one of the passengers. Now, I knew Ted was an computer heavyweight, but gee, blowing 747 tires in a single bound!? (Ted is the delightful "computer fantast" who authored *Computer Lib/Dream Machines*, originated the name "hypertext," and popularized its concepts. He first proposed the powerful linked-text concepts at least a decade before Mac's *HyperCard*—and about a decade after Doug Engelbart began implementing such a system at SRI in the 1960s.)

When interviewed for passenger comments on the shaky 747 landing, Ted said, with uncharacteristic brevity, "I thought, 'Well, gosh!'"

"Gosh!"??

Sharing Solicited

Send suggestions to Jim Warren, Realizable Fantasies, 345 Swett Road, Woodside CA 94062. Published proposals will be attributed to their authors unless anonymity is requested. ■

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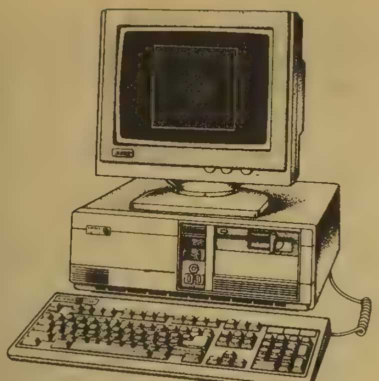

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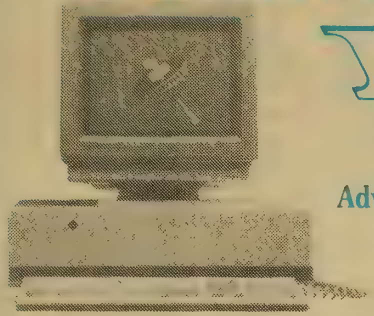

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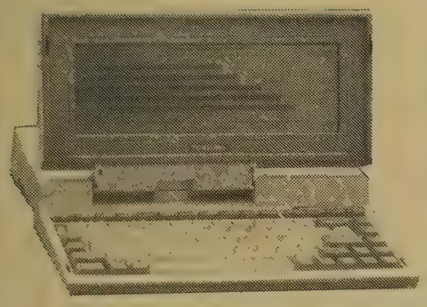

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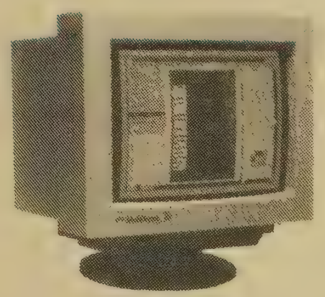

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Fujitsu Thinks Globally, Acts Locally

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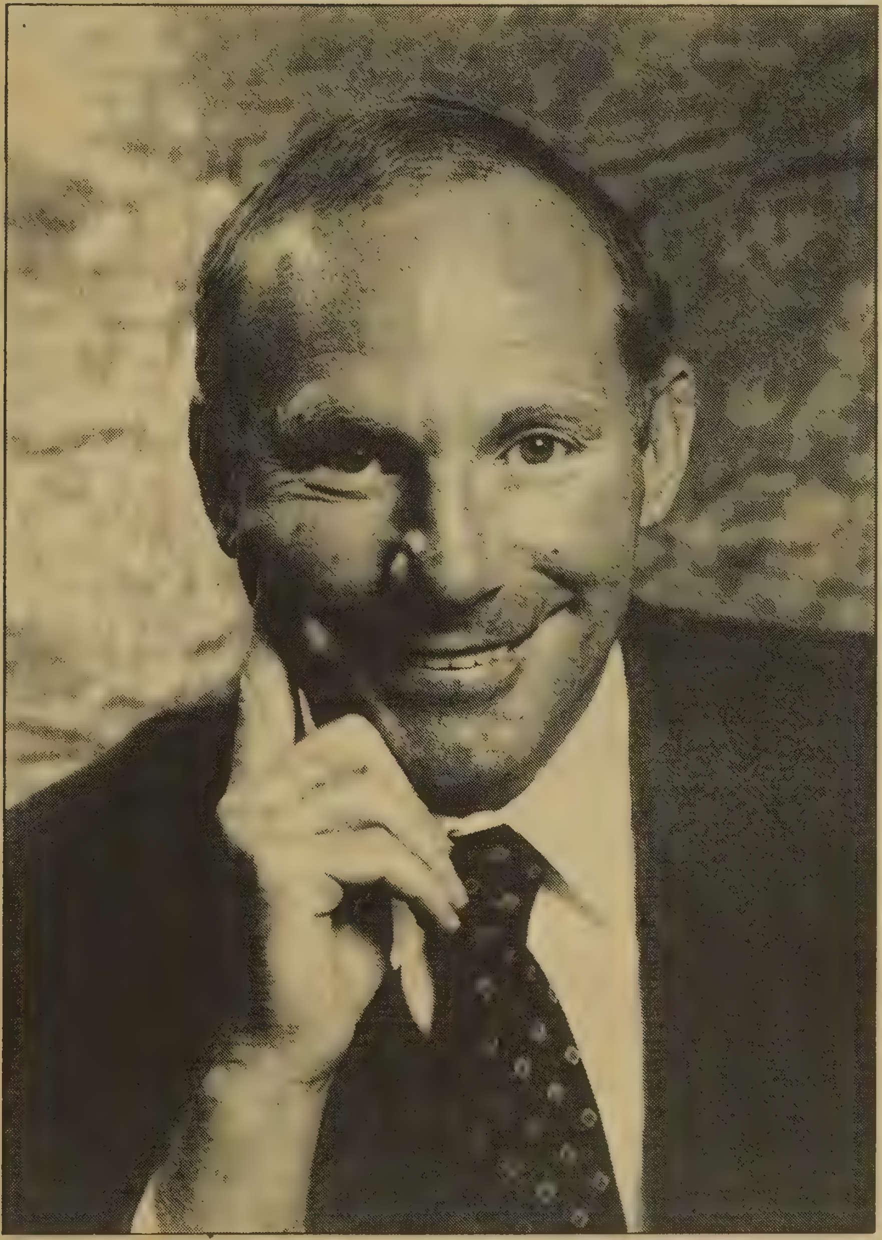


Michael Gluck of Fujitsu: "Fujitsu's philosophy is that if you want to be a successful company, you cannot just engineer or manufacture products in your home country; you really have to be a global company."

At a time when most American high-tech companies have either moved their manufacturing offshore or are aggressively exploring the possibility, one company built a brand-new, state-of-the-art disk drive manufacturing facility in Oregon, creating hundreds of new jobs and providing the marketplace with quality American-made product.

The company is Fujitsu. And, further dispelling the prevalent myth of quality mass production as an exclusively Japanese phenomenon, the plant in Hillsboro, Oregon, has met and frequently exceeded production and quality standards of its sister plant in the old country. And in addition to supplying drives to the US, it is now exporting drives to Fujitsu customers in other countries.

Fujitsu, a gigantic Japanese multinational corporation, had its first big success selling telephone equipment in the wake of a massive earthquake during the '30s. Its products range from chips and supercomputers to printers, telephones and fax machines. Its primacy in the Japanese market parallels that of IBM in the US.

Fujitsu's been in the United States in one form or another since 1968; Fujitsu America, its US-based subsidiary, was founded in 1979, its main business being the manufacture of high-quality mass-storage devices to Original Equipment Manufacturers. Its current OEM business continues to thrive, and the company has recently expanded its presence in the distribution channel as its printer business has grown.

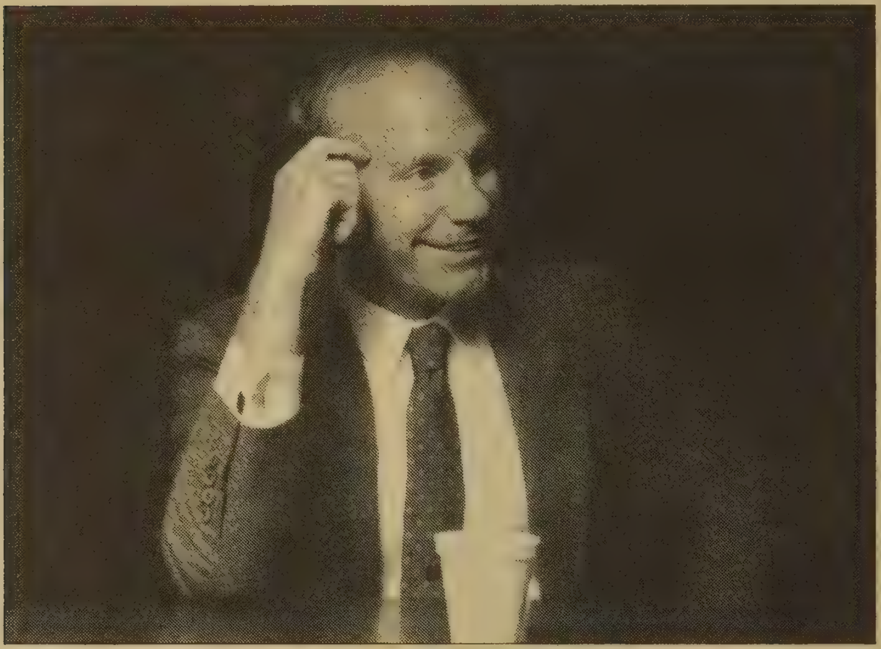
Long a master of the strategic alliance, Fujitsu can be found contributing to the success of many American-as-apple-pie companies, with Amdahl and Sun Microsys-

"I like to tease my American disk-drive competitors, 'Who is more American, American companies who are all building their drives in Singapore, Korea, and Thailand, and have laid off hundreds of people here in Silicon Valley, or Fujitsu America, a Japanese company that has 600 people that we hired in Hillsboro, Oregon, and is building drives here, close to our customers?'"

tems prominent among them. In the case of Sun, not only did Fujitsu sell the fledgling company disk drives on terms it could live with, they are now promoting the SPARC standard and manufacturing SPARC chips. The trade benefits are mutual—not only do Fujitsu products do well in the United States, but Fujitsu markets the products of its allies in Japan.

All this is in keeping with an increasingly global view of doing business as multinationals all over the world get ready for the '90s. In 1992, Western Europe will become a single unified market, a potential threat that both Japanese and American corporations are taking very seriously. Global colossi are busily setting up national subsidiaries, partly by way of natural expansion and partly as a reaction to protectionist policies.

Fujitsu's US operation offers some insight into the corporate strategies necessary to adapt to a changing economic world. Headquartered in San Jose, it has the true look and feel of an American high-tech company, and in fact it's been there quite a bit longer than some of the Valley startups it supplies.



We recently visited Fujitsu and spoke with Michael Gluck, the senior vice president of the Computer Products Group, who is highly qualified to discuss life at Fujitsu in comparison to US corporate experience. A 16-year veteran of Control Data Corporation, Gluck is well-versed in the ways of giant American corporations. He's been with Fujitsu for five and a half years, having been recruited by the group's president, Norm Petersen, for whom he had worked at CDC. (The vast majority of Fujitsu's US employees are American nationals.)

How long have you been with Fujitsu, and how did you get here?

I've been here five and a half years. Before that I was with Control Data.

Which is about as American a corporation as you could ask for...

That's right. Mr. Norris didn't want to buy any Japanese typewriters or anything else.

Norm Petersen, who's president of Fujitsu's Computer Products Group, called me up and said, "I've got this great job at Fujitsu." I had worked for Norm at CDC, and of the 13 managers I had in my 16 years there, he was really one of two that I'd be happy to work for again. I told Norm, "You're a super guy, I'd love to work for you again, but there are problems. I don't really want to compete with Control Data, and I don't really want to work for a Japanese company."

Norm's a good salesman, and said, "Well, as long as you're in the computer business you'll be competing with both the Japanese and Control Data, so why not work for a Japanese company for a couple of years? You'll be more valuable to the next Silicon Valley company down the street..."

So I kind of took it as a flyer, because I trusted Norm, and five and a half years later I see myself retiring with Fujitsu. It's a very good company.

How is working for a Japanese company after working for a major American corporation?

It's very interesting. In a lot of ways it's a lot easier and a lot more enjoyable than my experience at Control Data (laughs).

I jokingly tell people around here that my experience at CDC prepared me well for the Fujitsu experience. I love the company and I love the people, but it was a matrix-managed company. You had 15 people that could say no, and maybe one or two that could say yes. If you had an idea that you wanted to do, you had a lot of people that could block it, so you had to kind of use power-by-personality, sell your idea to many people. It took a long time, and therefore you had to have a lot of patience.

It's pretty much similar with the Japanese—it takes a long time to get something approved, and you have to sell it to lots of people, and re-sell it.

That's the negative part about working for a Japanese company, that a lot of people find frustrating—the time, and repeating the question, and second-guessing, and the detailed questions that they ask. But for me it was not much different, and the positive part is I really enjoy the cross-cultural experience.

My job is similar to what I had at Control Data—I was VP of sales and marketing for one division. But here, trying to learn how to be successful on two sides of the ocean is, to me, fascinating. I'll never claim to be an expert, even after five years, but I've learned a lot about how to work with the Japanese, and I've come to respect a lot of what they have. I've come to respect a lot of the very positive aspects of the American culture. What we have here, I think, is a good blend of the best of both worlds.

Could you give an example of how that might work?

Well, Fujitsu has, like IBM, become a global company. Even their motto here is: "Cooperation and co-prosperity: a cross-culture company." That starts right from Mr. Yamamoto [Fujitsu's president in Japan]—Fujitsu's philosophy is that if you want to be a successful company, you cannot just engineer or manufacture products in your home country; you really have to be a global company. That means be able to design, engineer, and manufacture products in various parts of the world, and market them. Marketing should be localized to the country, but the manufacturing and engineering should be globally done.

So to that extent, Fujitsu is the most forward and advanced of any of the computer companies here in the United States, in being a global company. We were the first Japanese company to start repairing disk drives in the United States, the year after I joined. We were the first Japanese computer company to start manufacturing disk drives, and that was three years ago in 1986. At that time the yen was 240 yen to the dollar, and when Norm Petersen stood up at the Data Storage Conference and announced our Hillsboro factory in the fall of '85, people asked him incredulously how anyone could build drives economically in the United States—our labor rate is so high and everybody's going offshore. Fujitsu was doing it, for global reasons, to be close to the customers, to be a global company, and to take advantage of the engineering and manufacturing capabilities that we have here.

We started our own engineering division here two years ago—we've got about 30 engineers here in San Jose—and then we acquired an engineering company in Colorado, in November of '87, called Intellistor. They had designed some controllers for us and did a great job; they came from the high-end IBM [mainframe] compatible world, and so after we gave them two projects, they became happy with Fujitsu and we became happy with them. When we acquired them they had 46 people; now there's 125 people.

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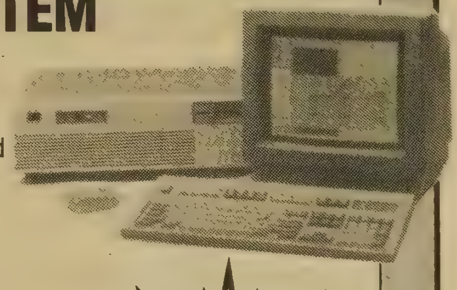

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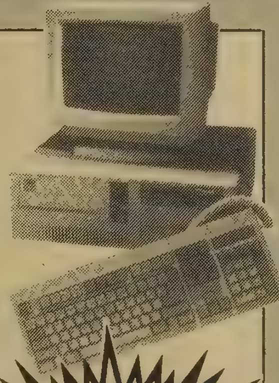

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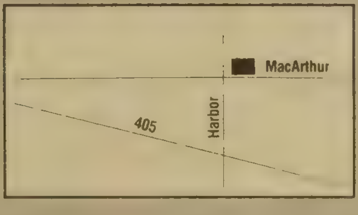
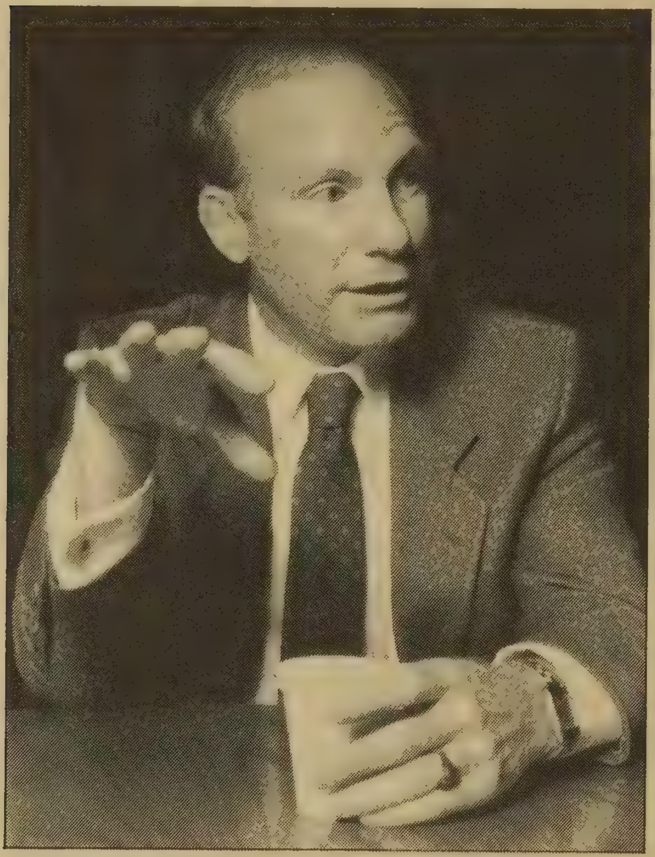


"If you're going to be in Europe, you should hire European nationals. If you're going to be in Japan, you'd better have Japanese nationals. Because they understand the customers—people like to talk to people that understand the language and the culture."



ler for the IBM compatible 3480 tape drive—it's a rack-mount unit that we're marketing to OEMs; Fujitsu's using it on their own systems in Japan. That has 18 VLSI chips that they designed in Colorado, using Fujitsu's chip technology, and that is going into manufacturing in Hillsboro, Oregon, this month. Hillsboro will be the only manufacturing facility worldwide for this product.

So this is the first designed-in-America, made-in-America product, exported to Japan, used as an integral part of some of Fujitsu's domestic mainframes. Fujitsu has really, truly become a global company.

I like to tease my American disk-drive competitors, "Who is more American, a Seagate-Imprimis-Maxtor-Micropolis-Miniscribe-Priam, who are all building their drives in Singapore, Korea, Thailand, and have laid off hundreds of people here in Silicon Valley, or Fujitsu America, a Japanese company that has 600 people that we hired in Hillsboro, Oregon, and is building our drives here, close to our customers?"

We don't look at it as an American company or a Japanese company; we look at ourselves as an American company with a Japanese parent. There's 4500 people here at Fujitsu America, and less than 200 or so are Japanese nationals. So we're really a cross-cultural company, in terms of being able to take the best of Fujitsu's technology and use it where appropriate. Many times we will use local sourcing and our own ideas here.

Is there a specifically Japanese influence that you sense in the company? It's hard to talk about that without lapsing into cliches, but there is an obvious cultural difference between Japanese and American companies.

In the sales and marketing, we're very much an American company. That's the way Fujitsu wants it—that's the way I think you should market your products. If you're going to be in Europe, you should hire European nationals. If you're going to be in Japan, you'd better have Japanese nationals. Because they understand the customers—people like to talk to people that understand the language and the culture and so on.

The Japanese influence is in the engineering and manufacturing. Even though Hillsboro is part of Fujitsu America, and even though Intellistor is a subsidiary of Fujitsu America, from an engineering standpoint—and Norm Petersen is chairman of the board, and I'm on the board—they are really considered to be part of Fujitsu Japan's global engineering, global manufacturing. We really shouldn't have the luxury of saying, "Well, we're going to design this product by ourselves, without talking to Fujitsu, and manufacture this product." Because then you're duplicating resources unnecessarily. All that is centrally coordinated and controlled.

Also, if we're going to put Fujitsu's name on it, it better have Fujitsu's reliability and quality. It's funny—when we opened the Hillsboro plant and started making Eagle disk drives, which are known for the highest reliability and set the standard in the industry, everybody was very happy that we were building Eagle disk drives in Hillsboro, but then they said, "But I want mine from Japan." (laughs) It took almost a year before our customers really fully had the confidence. At first we took 70% from Japan, and then 50-50, and now we're taking all our products out of Hillsboro—in fact exporting some to other countries. It took a year to convince customers that we can make products with the same or better quality on this side of the ocean.

The test process, the component selection process, qualification process—all the key components are the same. The manufacturing process is the same, the test equipment is the same, so everything goes through the same steps as it does in Japan. The only real difference is our first-pass yields—in other words, did we do it right the first time here in the US versus in Japan? That's how they measure our plant manager up there—what's our first-pass yield, the productivity of the American worker versus Japan?

We've been able to meet, and sometimes exceed, on a monthly basis, the quality in Japan. Of course, we have the additional benefit of having the most modern factory—Mr. Yamamoto, the president, was here when we opened the factory, and he said, "This is my most modern factory, and it is located outside of Japan." They took the best factory in Fujitsu and improved on it, so you have a cleaner clean room, and you're starting with a much better chance to be successful.

But in fact we *have* achieved the quality, and last month we achieved a milestone in that Hillsboro came up with a manufacturing process that improved the yield on the production line.

Fujitsu's philosophy is that the process has to be the same here and in Japan, so if it was good here, it ought to be good in Japan. We had to do a 1500-unit test, to prove out that the reliability and the yield of this process was better. After that three-month effort, Fujitsu agreed, and now that process has been adopted at our sister factory in Japan. This is the first manufacturing process invented in the US that has been transported.

Those are tangible examples that there's no magic—there's a lot of hard work, and if you talk to the people, they will tell you that we learned a lot from Fujitsu. In fact, we imported a lot of their manufacturing know-how and techniques and process. It's not just a cliche; I really believe it's true, that the Japanese as a culture, as a country, have invested more and put more emphasis on manufacturing than we typically do here in the United States.

In Fujitsu Japan, the manufacturing engineer is king. They actually promote people from design engineering to either manufacturing or test engineering. Whereas here, in most cases, manufacturing is considered a second-class citizen; we put up on a pedestal the guru who's the inventor in the lab, the genius, and he's got this idea and he throws it over the wall and says, "Okay, you guys build it." In Japan, the guru is the manufacturing guy, and in fact the manufacturing engineer sets the design rules. The design engineer has to get the approval of the manufacturing engineer that this can be made. Japan feels that if it can't be made reliably, why design it?

So everything is done from an integrated design and manufacturing concept, and their testing philosophy and their process philosophy is one that we've implemented here. For example, in Fujitsu's production line in Japan, and the same in Hillsboro, if there's an adjustment to be made, the next person on the line will check the adjustment. So right away you find out if somebody made a mistake, and you correct it, and then he tells his co-worker, "Hey, you better change this thing," and they have their quality circles and workgroups. That way you don't wait till the end of the line, because that's the worst place to catch failures; after all, you've spent all this time. You stop the line, you figure out what's going on. These are examples of the benefit of the cross-cultural approach.

What Fujitsu products fall under the umbrella of the Computer Products Group?

Fujitsu's an $18 billion company, and there's roughly three broad product groups in Japan. One's called the Computer Systems group—the CPUs, I/O, peripheral equipment, from supercomputers to personal computers,

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"When we opened the Hillsboro plant, everybody was very happy that we were building Eagle disk drives in Hillsboro, but then they said, 'But I want mine from Japan.' It took almost a year before our customers really fully had the confidence."

disk drives, tape drives—the information processing group.

Do they make the SPARC chips?

No, the SPARC chips are made by the semiconductor group. If that SPARC chip is used in a CPU in Japan, then the CPU group would get it. The information processing group is 2/3 of the $18 billion.

A second group is telecommunications, which is how Fujitsu started in 1935, as the equivalent of Western Electric to AT&T, building telecommunications equipment after a big earthquake leveled Japan. That's about 15% of the company.

And then the third group is the semiconductor group, which is gate arrays, chips, DRAMs, memory chips, and so on. That's about 15% of the company.

In the United States we have two subsidiaries. One is Fujitsu America, and we correspond to two of the groups, telecommunications and the computer group; in Fujitsu America, there are two big divisions, telecommunications, headed by Mr. Dodo who's president of that group, and the computer products group, headed by Norm Petersen, who's president of that group.

And then our other subsidiary, Fujitsu Microelectronics, five miles down the road in Santa Clara, handles the Semiconductor equivalent. They've opened a factory in Gresham, Oregon, which is 25 miles from our Hillsboro factory, to make one-megabit DRAM chips and ASICs.

Combined together, we're maybe $2 billion, something like that.

Now in the Computer Products group, because Amdahl markets Fujitsu's CPUs here in the US, and Fujitsu is an equity investor in Amdahl and not a managing partner, we at Fujitsu America don't really market Fujitsu CPUs.

Amdahl is really the outlet for CPUs in the United States, and Amdahl only markets large CPUs. Computer Products for us really means disk drives, tape drives, printers, I/O devices, printed wiring boards, modems, data communications equipment—these are products that we offer for sale to our customers on an OEM and distribution basis.

What was behind the decision to let Amdahl market the Fujitsu CPUs here, and have Fujitsu America concentrate on the peripherals?

Well, the Amdahl deal was much prior to the establishment of Fujitsu in the United States. Fujitsu America was incorporated in 1979. In 1979 it was just a liaison office trying to sell one or two products. Whereas the Amdahl relationship goes back to the mid-1970s, when Gene Amdahl ran out of money and the only place he could get it was Japan. Fujitsu provided Amdahl with an additional $2 million just as an equity investor, and then ended up supplying chips and boards and finally CPUs. What Amdahl would do is make them IBM [mainframe] compatible, so they would use the Fujitsu hardware, and their value added was true IBM compatibility, because Fujitsu's CPUs in Japan are not 100% IBM compatible.

And then the Heizer Corporation was liquidating its investment in Amdahl; and Fujitsu, just to protect their investment, ended up buying Heizer's share just as a defensive posture, but then signed a ten-year agreement limiting its ownership to 49.5%.

Amdahl is truly an independent company, and Fujitsu's just an equity investor, but obviously there's a close relationship because they cooperate and mutually design CPUs; in fact now Fujitsu is remarketing Amdahl IBM-compatible CPUs in Japan. So it's kind of gone the other way.

Fujitsu doesn't seem to have seen much need to get into PC-level computing in the US. Unlike, say, Toshiba, which is a key laptop vendor.

In Japan, Fujitsu is number one. In 1979 or '80, Fujitsu passed up IBM; to my knowledge, it's the only country in the world where IBM isn't number one. IBM sent 400 engineers over there to go fix that, and rapidly dropped to number three. (laughs) Because that isn't how you go fix the problem in Japan.

NEC is number two in Japan, but NEC is number one in personal computers; Fujitsu's number one overall, but number two in personal computers.

Unfortunately, Fujitsu had a false start here in the US. When I came here, Fujitsu was making a big push into the PC business, but they forgot the part that you've got to get the software compatible. It wasn't 100% compatible, so *dBASE III* didn't run and *Lotus* didn't run, so it was not a successful product here in the US. So Fujitsu decided to reorient it to vertical markets; one of our subsidiaries, Fujitsu Microsystems of America, is marketing Fujitsu's processors, but oriented to the Pick-based market as a vertical market. Fujitsu views Pick as one of the alternative operating systems like UNIX, and the reason they invested heavily in it is that Pick has a large following; it's got a lot of advantages in transaction processing and database processing and retail. Fujitsu views UNIX and Pick as two alternative operating systems for the future.

Fujitsu has been here in one form or another since 1968, and Fujitsu America in something close to its present form since 1979. The world has changed a lot in that time; how has Fujitsu adapted? It seems, for instance, to have started out with an exclusively OEM strategy and evolved into something more diverse.

I can speak about the last five and a half years. My boss Norm Petersen joined about nine months before I did. Since that time his group has grown by a factor of ten. So we've enjoyed a very rapid growth.

We did start out, as you mention, by offering our Eagle disk drives and some 14" disk drives on an OEM basis. We opened a sales office here in California, and hired about a dozen manufacturers' reps around the country to pursue OEMs large and small. When I came here we had 13 sales people, and now we've tripled the sales force. As we put in direct offices, our manufacturers' reps became stocking and what we called high-tech distributors; we called on large OEMs and let our high-tech reps call on the small OEMs as an extension of our sales force—providing, many times, warranty support and service support.

Then we expanded the line to tape drives, and then we started the printer business at roughly the same time as we started the tape drives. When we got into the printer business, we found that that was primarily an aftermarket product, more of a distribution product. For example, Sun Microsystems, one of our very large OEMs, doesn't really take printers. They just qualify them, but they're not in the business of incorporating printers as part of their offering. And when you go buy a PC, may times you don't even buy a printer.

So we really decided to start our distribution business in a bigger way when we started taking our printers into the US market. Fujitsu has been in the printer business for 25 years, and is one of the broadest line suppliers. We started first with a daisywheel product, then we brought a 9-wire, then an 24-wire, and now we have the broadest line of printer products in the industry, just like we have the broadest line of disk drive products. If you take our disks,

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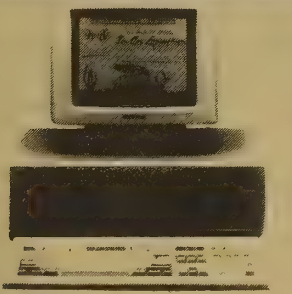

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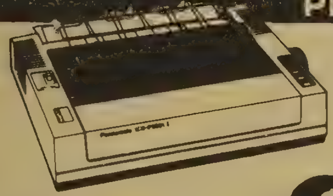

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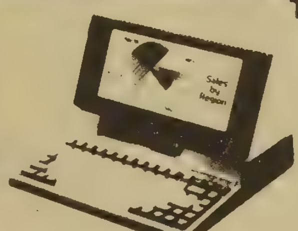

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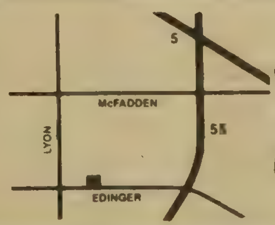

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"There's a lot of transition going on in the computer business; a lot of our disk drive competitors are going through tough times and consolidating. Yet our business has continued to increase."

tapes, and printers, there's no company that could provide the same depth of products. We've got disk drives—14", 8", 5 1/4", 3 1/2"—tape drives, big tapes, little tapes, 9-wire printers, 24-wire printers, band printers, laser printers from five-page-a-minute to 12-, 18-, 22-, 50-page-a-minute. Scanners—an extremely broad line.

But we found that we had to broaden the distribution, and for the first couple of years we had some fits and starts. We ended up with 40-something distributors, some regional, some national, some vertical, some two-tier, some one-tier. And about two years ago we decided we wanted to concentrate more on building the distribution business, as a way, quite frankly, to promote the Fujitsu brand name. Because one of the problems we were suffering, even a little bit on the OEM end with some of the new startup companies, was a lack of recognition of who Fujitsu was. You say "Fujitsu" in Japan, and it is the equivalent of saying "IBM." Everybody knows it; it's revered as the number-one company; everybody wants to go to work there out of school, and so on. You say "Fujitsu" in the United States, and it's, "Is it a film company? Fuji Film?" Which it's not.

The costs to develop a brand-name awareness—if we had a personal computer like an Epson, or a Toshiba, or if we were in the consumer electronics business, like Hitachi or Panasonic or Sony, we'd have a much higher brand-name recognition. So we felt, strategically, that by expanding the distribution business, it will get the Fujitsu label out there in front of people much more.

So two years ago we brought in some people who really understood the distribution business; we made some painful decisions at that time to cancel 12 or 14 single-tier distributors and concentrate on the two-tier market. So we're primarily a two-tier based distribution. We took a glitch for a while—a few-million-dollar drop—but then we ended up last year growing our distribution business another 40%.

We brought in a person who capitalized on the fact that we have a nationwide service organization, Fujitsu Customer Service, with 185 service outlets out there. We put together a TIPS program—Technical Information Program, cards, 800 numbers—we put together a Service Provider Program to help our distributors train our dealers.

We found out, frankly, that some of the dealers were not carrying our product because they felt that they couldn't get good service and support from our distributor, and they didn't want to be embarrassed when somebody came in and asked about a product and they didn't know how to demo it, or didn't have spare parts. So we have a service provider program, first, second, and third level, where we can help our distributors train the dealers.

And by doing that, we ended up expanding our distribution base, because this is what distributors want—help from the vendors. And that expanded the dealer base. We've grown our advertising and PR and co-op, and put a lot of programs in to expand that distribution. So as a strategy, we're focusing on growing the distribution business, probably at a faster rate than the OEM, although the OEM is continuing to grow.

There's a lot of transition going on in the computer business; a lot of our disk drive competitors are going through tough times and consolidating. Yet our business has continued to increase, even on the low end, at which we were typically not very competitive because of the dollar-yen problem, and I suspect it's for one of two reasons. One, people are nervous about potential consolidation and who they're going to be dealing with in the next five years, and they want a stable vendor that's going to be around. And number two, people are finding that quality counts, even on the low end.

My perception is that the mainframe business ten years ago became the minicomputer business; people went to

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EGA FOOTBALL (257) New! You control the action. Plays like real football game. Needs EGA.

EGA GOLF (250) 18 holes of the best scenery available. Requires EGA.

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THOUGHT ORGANIZER (1013) Text-based database organizes data and thoughts.

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distributed data processing, and all of a sudden you wanted everything in a minicomputer that you got in a mainframe, and now there's a transition to workstations and networks and PC-based distributed processing. If you have a PC, and it's just yourself and you have a failure, it's okay, but if you have a Novell server—we have a Novell network here, and there's 45 of us on the network. If that disk drive goes down, 45 people are out of commission.

Fujitsu's always been on the high end, being in the large scale mainframe world. We've had the Cadillac drive, and people have said it's overdesigned for the market, and our distributors have had a hard time with it, because if you've got a lot of different products to sell it's always easier to sell the cheaper product. How do you convince people it's worth spending an extra 150 bucks?

Word of mouth spreads pretty fast, and our business on the Macintosh is going crazy right now, because Jasmine and LaCie and people like that have announced our products, and the perceived and real Fujitsu quality means something. With a lot of the older products—the 86 Mb, the 172, and the 380 Mb are not leading edge any more, they're two or three years old and were always high-priced—I didn't order enough, because now people are coming back and buying them. Six months ago, they said, "If you can't meet this price, we don't want any more." We said, "We'd love to, but we can't. We have to make a profit too, and it has to be a win-win situation. We respect your decision, and maybe we'll catch you on the next product."

And now they come back and say, "Okay, I really want some of those..."(laughs) So we haven't lowered our price, and yet our volume has substantially picked up. To me it's one of two things—either they've had a quality problem or they're nervous about source of supply. You can give an extended warranty or whatever you want, but if you're not going to be here in five years to back it up, it doesn't really mean anything.

Do you have much problem with Japan-bashing out there in the American marketplace?

That's the first reaction; it's difficult for a lot of the employees to go to a cocktail party: "Oh, you work for a *Japanese* company?" But as you explain real life—we are adding employment here, making products here, designing products here, manufacturing here, servicing and supporting here, with 95% American staff...

What I like to point out is that even some employees tend to get frustrated working with a Japanese company, because it does have pluses and minuses. But in the venture capital world, nobody's investing in disk drive companies today, because there's a 20% or so gross margin, and you're not going to get any money—even distributors need more than that. If you want money, and you're in the disk drive business, there's only one place to go right now, and that's Japan. So Quantum is going to MKE, and Priam is going to Matsushita, and Maxtor is going to Kubota, and I don't know who some of the others will go to. The point is that you will probably be either working with or funded by or cooperating with a Japanese company. The benefit we have is at least we have a parent-subsidiary relationship—we're part of the family, not some outsider.

You're right—in some parts of the country you do tend to run into that. But I would say that Japan-bashing today isn't so much Japan-bashing, as a concern over trade friction that may cause a restriction in the source of supply. I don't think there's any hesitancy by any company anywhere to buy; if you look at the IBM PC, more than half of it is made in Japan. Even the most American of American companies, I guarantee you, are buying some chips, memory, DRAM—something from Japan. Even Intel—two or three of their top customers are in Japan. The trade barriers go down when you talk about real economics, and quality, and so on.

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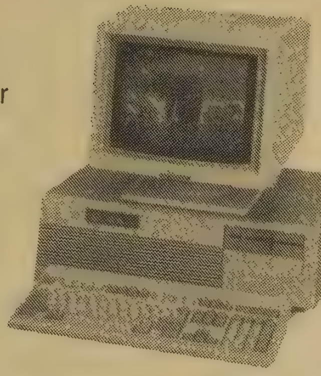

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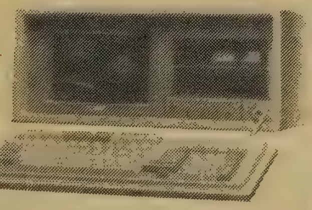

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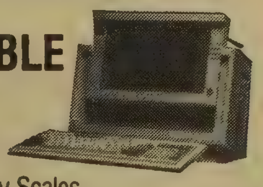

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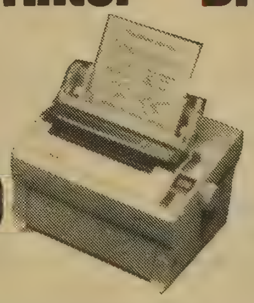

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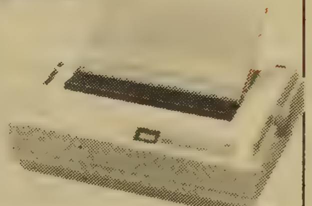

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trade friction, and is there something that could happen politically to cause a restriction in the source of supply?

Like the Toshiba flap.

Right. And there we have a good answer, because we're making them on this side of the ocean. Norm Petersen was kidding George Scalise [president and CEO of Maxtor] a few months ago, when as part of the whole trade sanction that was imposed on Japan, there was a proposed duty that was going to be placed on products manufactured in Hong Kong and Taiwan and Korea and so on. George Scalise got nine American companies to band together to say, "Please don't have any duty on products coming from Japan, or the Asian companies," because they would've had to pay duty. So we didn't have to do any lobbying; we had these American companies that are all offshore doing it for us. (laughs) It's truly a global world.

Fujitsu's view of the world is, if you look at 1992, the GNP of Europe will be bigger than that of any other economic segment; the United States is second, and Japan is third. Yet three-fourths of Fujitsu's revenues come from Japan. So Fujitsu is rapidly globalizing. There's 15 manufacturing plants outside of Japan now. October 23 we announce the opening of our plant in Ireland; we've got a huge plant in Spain; Fujitsu's committed to a multimillion-dollar semiconductor wafer facility in the United Kingdom.

So that's how you're dealing with 1992, which I gather is a serious concern in Japan?

That's right. In Fujitsu's view, there's three basic economic sectors, and you have to be able to engineer, design, and manufacture in all three of those sectors. We may end up marketing a product that was designed in Europe, and built in Europe, and exported to the United States, and Europe might end up marketing a product that was designed in America and built in Hillsboro. No company, even IBM, is going to have the luxury of designing every single product in Europe, every single product in Japan, and every single product in the United States. You're going to have to specialize.

We think that probably the way it'll work out is that if Fujitsu in total is manufacturing x percentage of their total products in Europe, that will meet the European Community guidelines, and probably the same here in America.

Do you see getting into any completely different areas?

We are constantly amazed at the breadth of technology that Fujitsu has and the limited scope of products that we're offering. We're a little reluctant to spread ourselves too thin.

For instance, Fujitsu's got a great voice communications product; being big in the telecommunications business, and being big in the digital signal processors—Fujitsu has cellular telephones we market in the US—they've come out with a voice recording technology that many believe will be the next enabling technology for the next ten years. Just like PCs were a tremendous enabling technology to bring computers to the masses, the next technology—to bring computers to the executives, who are still keyboard-illiterate—will be voice. You'll dictate, and there'll be

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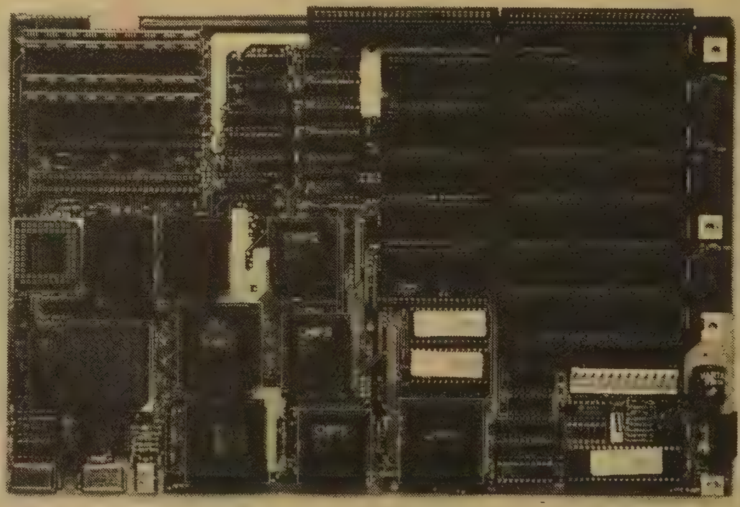

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user-friendly commands—"I want my mail." You'll be able to read and talk. It may take ten years to do that, but with artificial intelligence and fuzzy logic and voice… these are technologies that Fujitsu has.

If you look at Fujitsu as a company, they are very well positioned—a few months ago, the *Wall Street Journal*, in its centennial issue, came out with an article that talked about the next century. They listed 56 companies that they predicted would be in business 100 years from now. Fujitsu was one of those companies—the only Japanese electronic company in the lineup.

I think IBM regards Fujitsu as *the* competitor, just like Fujitsu views IBM as *the* competitor. Fujitsu's well-positioned because they have the basic semiconductor technology—SPARC chips and DRAM and all these things—and in addition to that, this HEMT—High Energy Mobile Transistor, and RHET, Resonant Hot Electron Tunneling technology. Fujitsu has gallium arsenide. We're investing a lot in our own software technology and fifth-generation artificial intelligence. Those are the technologies that you need to go into the next hundred years.

How active is Fujitsu in looking for innovative American technology to acquire?

This is something that Fujitsu is becoming much more active in now. We are actively looking at partnerships and joint ventures and strategic alliances.

For example, Fujitsu invested about 39% in Poqet Computer; Poqet will be in our booth at COMDEX, and Fujitsu will take that technology and Kanji-ize it and offer it in the Japan market. And otherwise just be an equity investor in the US market, like with Amdahl.

Fujitsu's a 10% investor in a company called Anamartic, that will be announcing a wafer-scale memory product at COMDEX; it's an English company, one of Clive Sinclair's spinout companies. So I think Fujitsu is aggressively, in all parts of the world, trying to work with companies to push the envelope out and work together on technology.

I think the relationship with Sun is a perfect example of that. We started with Sun—when I joined here five and a half years ago, Sun was a startup company with less than 100 people, and Scott McNealy was maybe 28 or 29. I remember going over and meeting with him, and he said, "I need the *best* price, because we're going to have the *lowest-cost* workstation…"

At that time, Apollo was a couple hundred million dollars, and who would have thought that they could compete with Apollo, who owned the world? And now Sun's a billion plus, and now Apollo's H-P.

We said, "Okay, we'll work with you, Sun, and we can give you the lowest prices if you take all your peripherals from us and sign a requirements clause. That's one way we can legally give you our most-favored-nation clause, because obviously your volumes wouldn't justify it. But if, to start, you could be exclusively Fujitsu peripherals…"

That's how they started out, and we worked with them. They needed quick delivery, and of course the Eagle helped their business, too. And then as they grew, they'd say, "Well, gee, we're buying a lot of Fujitsu products, $25-50 million worth of disk drives, why doesn't Fujitsu buy any of our workstations?"

So we used to sponsor, twice a year, executive seminars in Japan, where executives could go see our technology and future products, and go meet with Fujitsu executives. We set up meetings for Scott McNealy's people to present their workstation. It took about 18 months of steady effort, but last year Fujitsu signed what the press said will be a $200 million OEM agreement to remarket Sun Microsystems workstations under the Fujitsu label in Japan.

So truly this has become a two-way business relationship. ■

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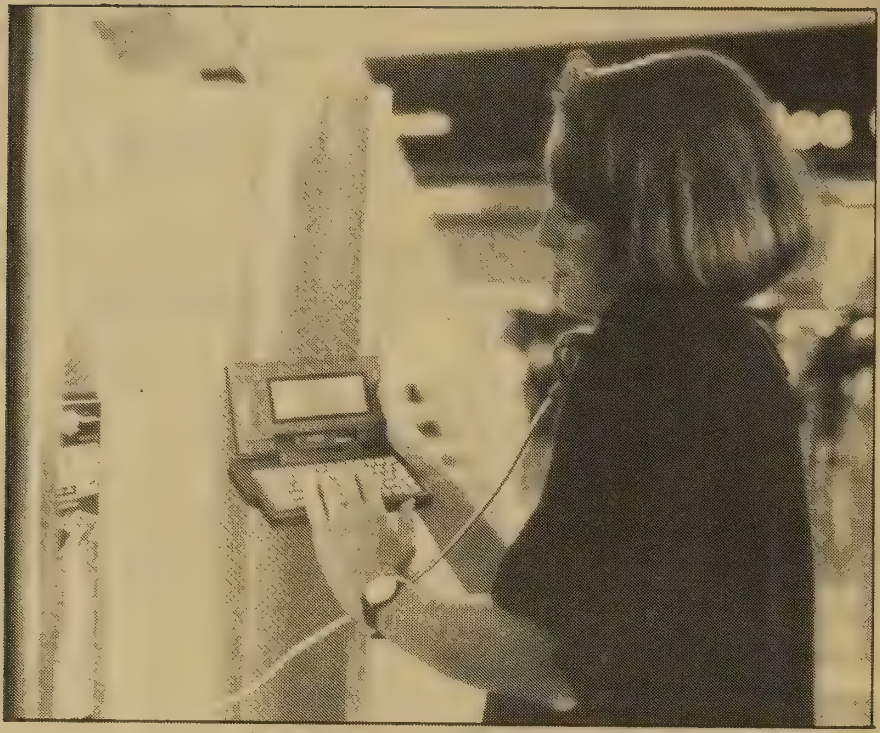
Atari's Handheld Computer: The Portfolio



The Atari Portfolio is a low-cost, extremely portable computer that goes anywhere.

By Ed Kahn

When laptop computers first made their appearance on the market, our imaginations carried us back to the brave new world of Dick Tracy and forward to other unrealized marvels. Where would it all lead? Perhaps to the power of a mainframe in a pea.

As power has come down in size, the dream has been fueled. But in fact, laptop computers have now taken two quite different roads. One path leads to super-powerful computers that really are portable, even though they are hardly tailored to our laps. The other fork of the road leads to an exploding market of tiny, lightweight units somewhere between a pocket calculator and a computer.

This class of computers is made up of units that are smaller than, say, a sheet of paper. Once you begin to move to units smaller than this, there are inevitably compromises in the keyboard and the display. Nevertheless, these tiny units flourish, appealing either to our fantasies or to a market that does not depend so much on entering data as on having an all-purpose gadget with lots of data stored that will still allow you to input new data—even if a bit tediously.

For the most part, these tiny units, while useful, have been severely limited in what they could do. For one thing, they were not really, like their bigger cousins, capable of performing all of the functions of a desktop unit; it was not possible to transfer data back and forth, which would enable these machines to function as extension modules of our primary computers.

To date, the smallest "real" computers weigh in at about four pounds. This will let you use either something like the Radio Shack Model 100—and its imitators and successors—or one of the new generation of full-screen units like the latest offerings from NEC and Zenith.

But Atari has now scored another in its long line of firsts with the introduction of Portfolio, a $399 full-fledged MS-DOS computer weighing less than one pound and having it all—except a full display and full-size keyboard. But what do you expect in a unit about the size of a videocassette?

> **Atari has now scored another in its long line of firsts with the introduction of Portfolio, a $399 full-fledged MS-DOS computer weighing less than a pound and having it all—except a full display and full-size keyboard. But what do you expect in a unit about the size of a videocassette?**

It's not fair to compare apples to oranges. This unit is intended to compete in the market that supports small units like Sharp's Wizard. While Atari might say it is not in this class, and be correct, I think the people who are in the market for these small units will have a look at Portfolio and see that it offers a lot more.

The Portfolio

Portfolio is a little smaller than a video tape. To open it, you lift the cover, which hinges along the back. Inside is a miniature keyboard with all of the letters and function keys laid out just as you would hope. If your hands were half-size, you would probably be able to type like a champ. After playing around with it for a while, you can actually get pretty good. But it will never do for serious touch typing.

The lid contains an 8 X 40 LCD display measuring about 1 1/2" X 4 1/2". When you open the unit, it automatically turns on with the first key you touch. And when you are finished, it will turn itself off after a few minutes of inactivity. It is powered by three standard AA batteries, which are supposed to last for six to eight weeks of average use.

Portfolio is run by a CPU, operating a little faster than the original IBM PC, and the operating system is compatible with MS-DOS 2.11. This means that you can run many of your favorite programs inside this unit, although the machine comes with a built-in word processor, diary, address book, calculator, and spreadsheet.

The thing that sets this computer apart from the competition is that it really is a full-fledged computer complete with an operating system, expandable memory, ports for loading and transferring data, application programs, and memory cards that function like disk drives. Although there is no internal hard disk, the built-in memory functions like a hard disk. Furthermore, you can designate a portion of the memory to function as a RAM disk.

continued on page 82

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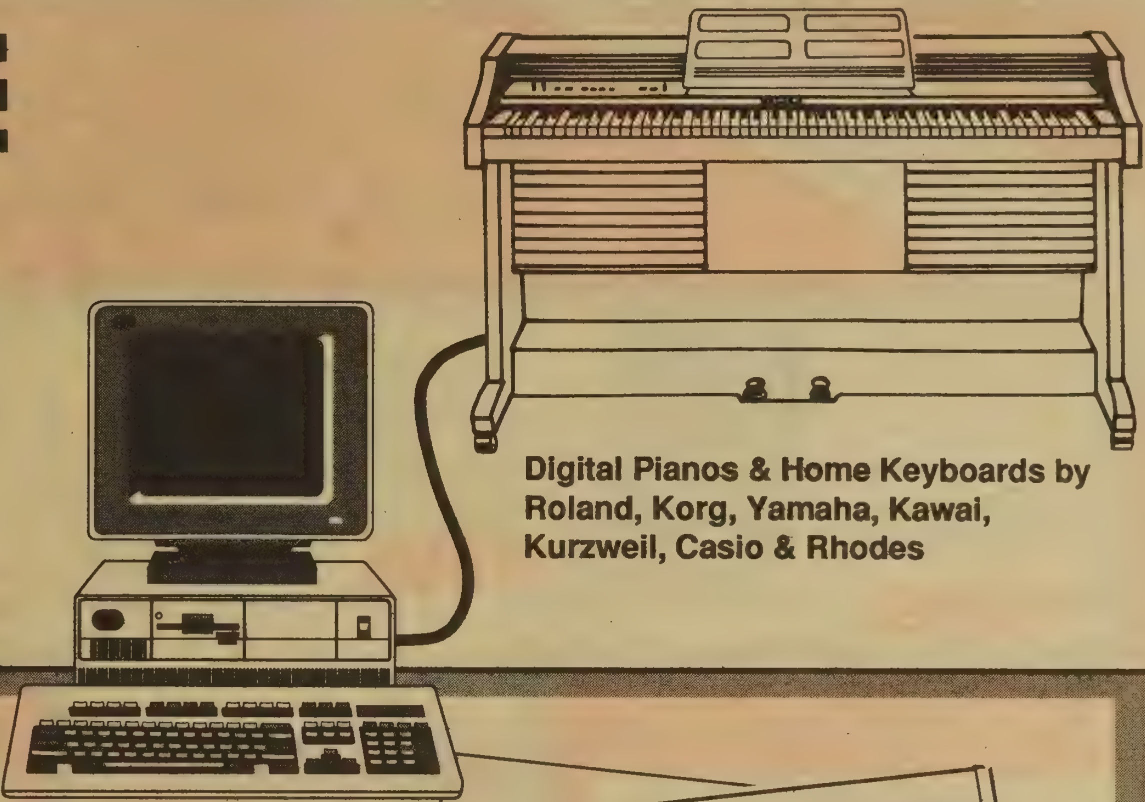

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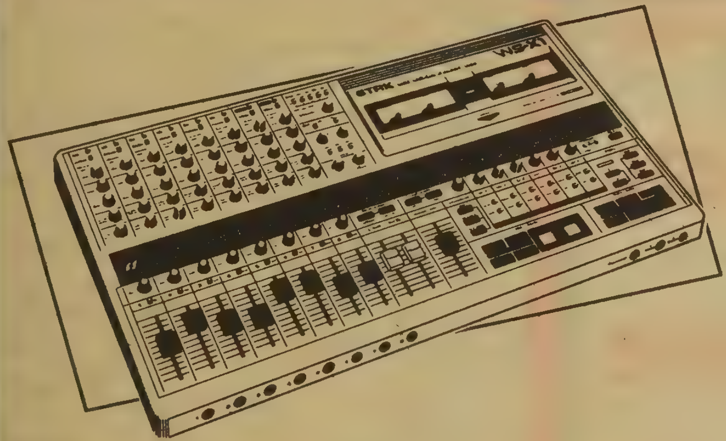

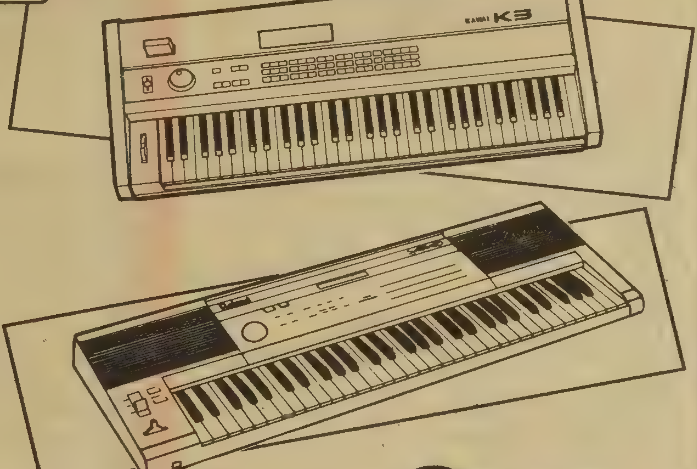

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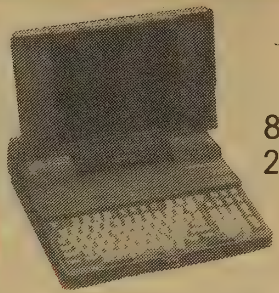

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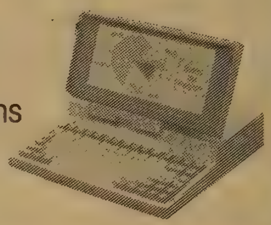

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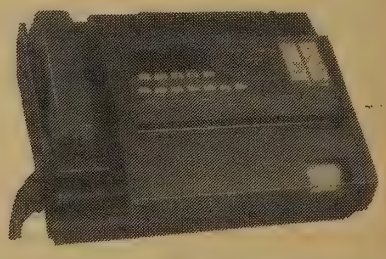

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BY SUZANNA MUSICK

LAN Or Mini? That Is The Question

Just what is a "mid-range" computer anyway? Not too long ago that was an easy question to answer. If a computer was not a mainframe or a PC, it was a "mid-range," or mini-, computer. Today, however, all that has changed.

With the increasing capacity and functionality of the Local Area Network (LAN), the mini's primacy in "mid-sized" companies is being significantly challenged. More and more frequently the LAN has become the "mid-range" system of choice. If you were upgrading your company to a multiuser system, which one would you choose? In order to answer that question, let's examine the similarities and differences between the two environments.

Applications

It's hard to say which area of comparison is the most important, but, as a user, I first look for the software that best satisfies my needs. If you need productivity software (i.e., word processing, spreadsheets, graphics, et. al.) the LAN wins hands down. Literally thousands of programs have been written for the PC environment, and many of these have been rewritten or adapted to run on LANs. All of the leading PC software companies have multiuser LAN versions (e.g. *WordPerfect*, MS *Word*, Lotus *1-2-3*, *Excel*, *dBASE*, and *Paradox*).

This is true of accounting software as well. The leading high-end PC programs also have LAN versions that allow true multiuser processing (see the September 26th issue of *PC Magazine* for an extensive review of LAN accounting software). These programs are often perfect for many different types and sizes of companies. On the other hand, if you have extremely unique requirements, you may have a problem locating a LAN-based solution.

Most LAN software (accounting and otherwise) is written to be used in many different business situations. On the other hand, much of the software available for the minicomputer is "vertical market" or, "functionally" specific. For instance, if you are running a hospital you may not find hospital management software written for a LAN. Because the requirements of running a hospital are unique, and in the pre-LAN world a single-user PC would never have been able to handle the job by itself, the software was not developed.

When minis were new on the market they were seen as smaller, less expensive versions of the larger, mainframe computer systems. The software created for these systems was custom-programmed for one company's specific use. If you were running a hospital, you bought a mini, hired programmers, and developed software that was uniquely suited to your requirements.

Often what followed next was that the hospital would then try to sell that software to other hospitals in order to recover some of its development costs. Most businesses attempting this strategy soon discovered that they were not in the software development business, and eventually sold the programs to true software companies or VARs (value added resellers). The VAR would then market, distribute, support and enhance the software. This is the route by which a lot of minicomputer software initially came into commercial existence.

Once the VARs had possession of the software, they could then concentrate on marketing it to other businesses (following our example, hospitals) and tailoring it each company's particular needs. Because of these highly individualized applications, minicomputers still have a meaningful place in today's market.

Most high-end LAN accounting programs have certain vertical market solutions built into the basic software. For example, many LAN programs can satisfy the requirements of wholesale distributors, contractors, and/or manufacturers just by adding these specific modules to the core general ledger, accounts receivable, accounts payable and payroll modules.

Since PC and LAN software is written to be used by the masses, the cost of developing and maintaining the software is shared by many. For this reason, if your business requirements fit into the parameters of LAN programs, you can normally save between 25-75% of the cost of custom software.

Minicomputer software generally has a smaller market share. Therefore, software written for the minicomputer normally costs considerably more, since the costs are distributed across a smaller number of users. It is not uncommon to see minicomputer software cost $50,000 with functionally similar LAN software costing $10,000. Further, most minicomputer users still must maintain a programmer (or two or three...) on staff, or be dependent on a VAR, in order to support and maintain the system.

Hardware

Hardware is another issue when it comes to comparing the minicomputer and the LAN. Because of the standardization created by the PC (that is, IBM) and DOS, you can have any number of different vendors' hardware on your LAN. Our internal Novell LANs have Compaqs, Wyses, NECs, Epsons, Leading Edges, Toshibas, ASTs, and other PCs linked, and working together, harmoniously.

The opposite is true of a minicomputer (although we are just beginning to see some changes to this approach). Let's say you have a Data General minicomputer, and you want to add more processing power; in order to do this, you must buy more Data General equipment. The same is true for DEC, IBM, HP, Wang, and the rest of them. While the program is only in its infant stages, Hewlett-Packard is working to integrate the PC and LAN together, and the alliance with DEC, Novell and Apple shows some signs of changing this proprietary approach. However, the ability to share programs and data between minis and LANs is not available to any significant degree at this time.

With the increasing capacity and functionality of the Local Area Network (LAN), the mini's primacy in "mid-sized" companies is being significantly challenged. More and more frequently the LAN has become the "mid-range" system of choice.

While in some situations I feel certain that a minicomputer must still be a more cost-effective solution, it is not often the case. In a minicomputer environment you buy one central processor and you "hang" terminals off of that processor for everyone to have access to the programs and data. The central processor is the main hardware expense, as the terminals are relatively inexpensive. A minicomputer CPU can cost from ten to literally hundreds of thousands of dollars, and terminals can be purchased for a few hundred dollars each.

In a LAN environment you have a separate PC for each user and a "file server" which stores the programs and data being shared. If you need to expand the LAN, you add an additional PC, a network card and some cable. While the PCs are more expensive than terminals, normally LAN file servers are significantly less expensive than comparable minicomputers. Further, the peripherals and expansion

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capabilities of a LAN (i.e., printers, modems, memory, hard disks, etc.) are usually much less expensive than for a minicomputer.

Processing

One area where the mini still maintains the lead is in the area of sheer capacity and I/O capabilities. Even though the LAN is racing to catch up, the minicomputer can still handle larger volumes of data more efficiently than a LAN. The ability of a LAN to handle a 500 Mb real-time database with ease and speed is not currently a reality.

However, in a minicomputer environment if the central processor goes down, the whole system goes down; i.e., no one can use their computer. In a LAN, if the file server goes down, users can still operate their PCs until the file server is working again. For this reason, even if the hardware configuration you need is the same price for a minicomputer as a LAN, you have more options with a LAN, and, when you add in the price of software and support, the LAN will almost certainly come out the winner.

Support

Speaking of support, this is another issue which must be compared.

If you look at just the actual support services, minicomputer vendors have had the upper hand for years. DEC, HP, IBM, and the others have teams of people whose only job is to service the minicomputers purchased by their clients. These people are experts in repairing and maintaining these systems.

But, of course, there is a catch. As the minicomputer becomes a few years old, and new models come out, the vendor starts applying pressure for you to upgrade (i.e., spend the bucks). They often accomplish this by increasing the price of the support contract every year until it becomes a significant sum of money (many of my clients' minicomputer service contracts range from $1,000-$2,000, and more, per month, for maintenance support).

In contrast, good, solid LAN support is harder to find. Anyone with a real interest in PCs can learn enough to operate a LAN. But do they really understand the cabling issues? Can they configure the LAN to run at optimum speed? Do they know what to do when the system crashes, or can they add that new laser printer with the downloadable fonts onto the network? In a few more years there will be significant experience and expertise available to overcome the current support shortfalls. Until then, make sure you do business with a reputable dealer with an installed base of LANs before you commit your operations and money.

Let's examine other areas of support. I mentioned earlier that many minicomputer users have one or more programmers on staff. They will also often have a MIS manager who interprets the requirements of management into the language of programmers and vice versa.

In a LAN environment there needs to be someone designated as the system administrator. If the LAN is large enough, that is a full-time job, but the only time we have seen staff programmers is when the client is a software developer. (In fact, we have clients who are mini and mainframe software developers and run their own accounting on PC LANs.)

Training is another issue when it comes to support. Due to the sheer number of PC-literate users today, it is becoming the exception, rather than the rule, to find people who do not have some experience working with a PC. This makes training easier when the people you are instructing are already familiar with the system. What we are finding is that many of our new employees are already knowledgeable in using *WordPerfect*, *Lotus*, *Paradox*, or other programs standard in our offices. If they do not already have experience, there are numerous training schools, disk-based tutorials, books and videotapes available to help users learn new programs.

Largely due to the proprietary nature of the minicomputer environment, it is more difficult to find anyone, much less scores of people, who already have experience with a specific minicomputer system. It is even more rare to find someone who has used a particular software program. This makes the cost of training a new user on the minicomputer more expensive and time-consuming.

Summary

While I could go on about this for days, I will attempt to wrap this up and let you get back to work.

Today, the minicomputer is a more mature, stable environment that has the power to handle huge volumes of data better than a LAN. The LAN, however, is a newer, growing technology that is rapidly catching up to the power of the mini, and is based on a standard where many people already have knowledge and feel comfortable.

I think as minicomputers become less proprietary, and LANs become more powerful, we will continue to see a blending of the technologies where we get the best from both worlds (e.g., the minicomputer as a file server for a LAN). So, in the final analysis, we, the users, come out the winners by being the recipients of the whole technological growth process. ■

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LANs

BY WAYNE YACCO

Buying The Right LAN

Part I: The Scientific Approach

There are many competing approaches to designing computer systems. Orthodoxy says that you should begin by measuring your needs: software requirements, transaction volume, number of users, and so forth. Then, you find all the system alternatives that will satisfy those factors and pick the best fit within your budget.

This is a fairly analytical approach. It may require substantial research, but it is a method that can be justified objectively once factor-weighing and some other judgments are made. That's the theory.

The Shortcut

In practice, many acquisitions begin with the choice of a vendor.

A fashionable (though not necessarily easy-to-justify) method of picking systems of all types is to go with the market leader. This shortcut is a particularly popular method when the goals and expectations of the prospective buyer are not clear and well-defined.

Tradeoffs

There are advantages to following the leader.

Systems with a large installed base attract more third-party developers. These developers provide the user with additional options, second sources and competitive prices. Software developers, too, favor large market opportunities, and will develop their little hearts out to be compatible with the leader.

A large installed base also provides the opportunity for users to support each other in meaningful ways, and to influence the vendor's product-development plans and customer-service policies.

For a given application, these considerations can outweigh the superior cost-benefit equation of another system that provides a better technical solution, a lower price, or both. Finally, adopting this method takes far less time and money than conducting a comparative study of technical merits.

This phenomenon simplifies the decision-making process for many users. However, it can be far from the end of the process. Even if you begin by choosing a particular network vendor, the remaining choices can be significant.

Copyright © 1989 by Wayne A. Yacco. All rights reserved. Wayne Yacco is editor-in-chief of Vulcan's Computer Buyer's Guide. *An editor, writer, and consultant specializing in microcomputers and their business applications, he writes articles, columns, and reviews for many trade and business publications. He can be reached at Box 269, Burbank, CA 91503.*

Novell: The Market Leader

At least 60%, probably more, of the networks presently installed on personal computers have been shipped in a red box. That's red as in "Big Red," a popular sobriquet for Novell, Inc. Most buyers continue to specify Novell, at least partly because of the company's leadership in the market.

So let's take Novell as an example. Novell alone currently offers five systems just for the IBM PC, PS/2 or compatibles—in addition to a VMS system for DEC VAX. These systems include different features, vary substantially in cost, and support a wide range of network capabilities.

- **ELS-I** ($695—four-user): Entry Level Solution; *NetWare*, Level I
- **ELS-II** ($1,895—eight-user version)
- **Advanced NetWare** ($3,295—100-user version)
- **SFT Netware** ($4,995—System Fault Tolerant version)
- **NetWare 386** ($7,995—250-user): several times faster, radically enhanced

But selecting one of these systems is not as simple as saying, "I need a system that supports four simultaneous users and runs DOS." There may be limitations that can make these systems unsuitable, or substantially more expensive than their feature lists and selling prices would indicate.

ELS-1

Consider *ELS-1*. The lowest level of *NetWare* only allows workstations to run DOS version 3.x. Even if all of your other needs are very limited, the need to run OS/2 eliminates *ELS-1*. Of course, it may be possible to avoid OS/2 by judicious selection of application software.

ELS-1 limitations on accounting or security provisions may also be unimportant for a system of its intended scale.

Other considerations may make compliance with the requirements of *ELS-1* more difficult. *ELS-1* is the most hardware-sensitive of the *NetWare* family. It requires a platform that is very close to the IBM standard. For instance, *ELS-1* only supports the disk controllers used by IBM in its systems. If your AT doesn't use a Western Digital controller, it may not be entirely compatible with *ELS-1*.

Support for network adapters is similarly limited to just four: Novell NE1000, Novell RX-Net, SMC ARCNET and 3Com EtherLink 3C501. These adapters may be among the more readily available, but they do limit the choice of vendors. More importantly, they limit the choice of physical protocols to Ethernet and ARCNET. IBM's Token Ring is not supported. Likewise, drivers are only provided for a very limited number of hard disks.

Some users experience this dependence only when it manifests itself through software incompatibility. Jeff Lasman, vice president of Los Angeles-based Management Accounting Systems, Inc. (MAS), an authorized Novell dealer, claims "I've had personal experience with *ELS-1* not working with *MBA* accounting software, and I've heard from others about problems using *Dataflex* and COBOL."

Lasman also complains about several other *ELS-1* limitations and has decided not to install that particular level for his customers. Among the problems he blames for this decision is *ELS-1*'s inability to run as a dedicated server. The need to use a computer's keyboard-interrupt controller to switch between server and workstation modes is one of the main causes of hardware conflicts, according to Lasman. He also cites several other dislikes, including the need for 2 Mb of memory, the expense of upgrades to other levels, the use of an older version of *NetWare* (than in *ELS-2*, *Advanced* and *SFT*), and the lack of such major *NetWare* features as: resource accounting, Btrieve, Value Added Processes and Value Added Disk Drivers.

Novell only admits to the hardware dependence of *ELS-1*, and says software incompatibilities shouldn't arise on the right platforms. Other authorized dealers such as Rick Khan, president of Pasadena-based Micro Trends International, back Novell's contention.

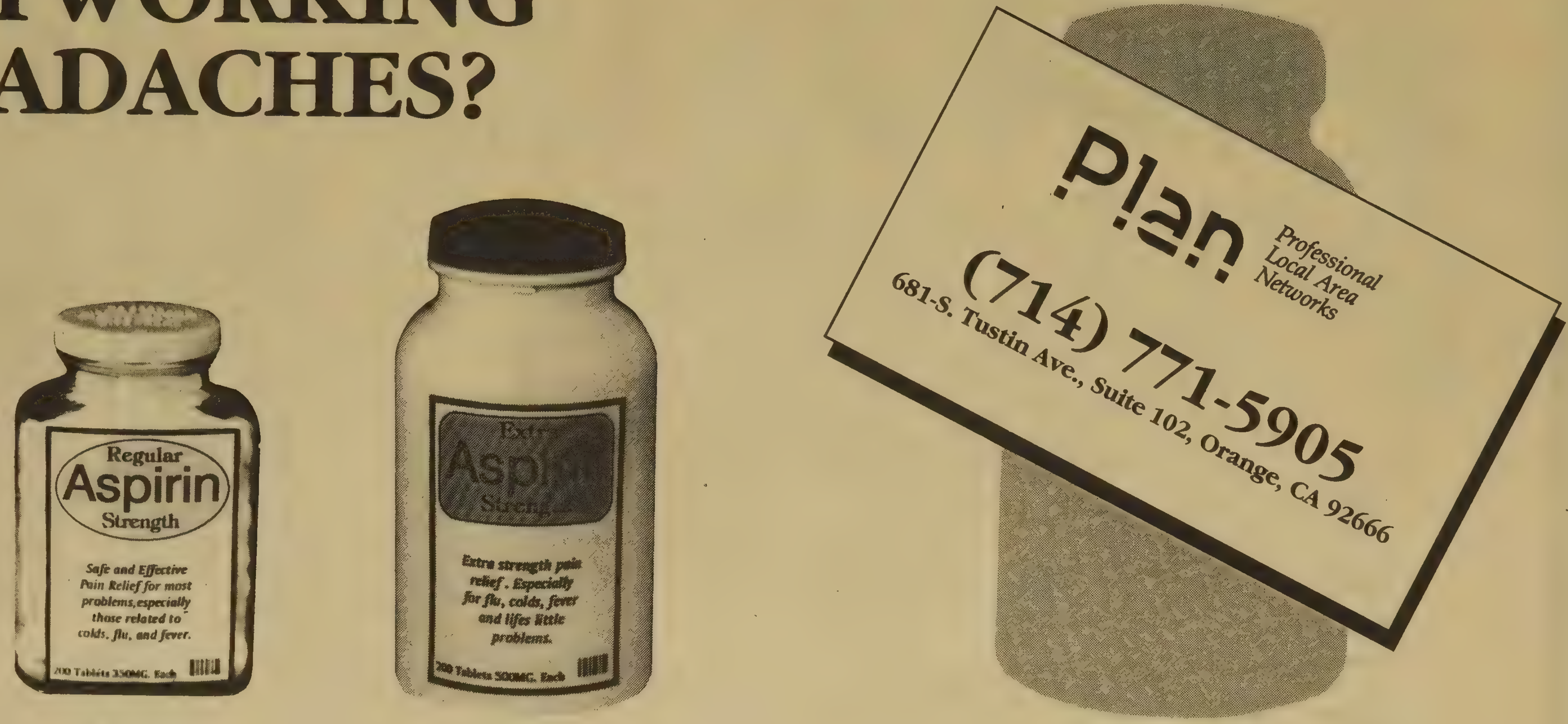
Khan does agree with the assessment that *ELS-1* requires at least 2 Mb, just like higher versions of *NetWare*, to really be effective. He also feels that despite offering support for ARCNET, *ELS-1* is a relatively poor performer using that protocol.

Khan suggests, "Now that memory's getting cheap again, *ELS-1* sales are going to pick up—and they are picking up." Khan dismisses Lasman's concerns over the lack of a dedicated server, saying "A non-dedicated server is necessary for such a small network to be cost-effective." The system's restrictive hardware requirements and his minor reservations not withstanding, Khan maintains that, because of its extremely low cost, *ELS-1* is an irresistible solution when properly applied.

Next Month

Next, we'll look at the other Novell *NetWare* levels for IBM personal computers and compatibles, and also at some considerations beyond basic system requirements. ■

WHICH ONE OF THESE WILL BEST SOLVE YOUR NETWORKING HEADACHES?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AMIGA

BY MATTHEW LEEDS

Hot New Products

The fall is always an active time for new product releases. Although the Amiga market has slowed down in terms of major new product releases, there are a few still worthy of notice.

Digi-Paint 3

At the top of the list is the long-awaited arrival of *Digi-Paint 3* from NewTek. *Digi-Paint 3* sets a new standard for HAM paint programs. In case you've been living in a tree, the Amiga's HAM mode allows the use of all 4096 colors on the screen at once. The new features in *Digi-Paint 3* include real-time scrolling on superbitmapped screens up to 1024 pixels high or wide (with the new Super Agnus this allows a screen up to 960 X 960), texture mapping with anti-aliasing, an improved user interface, variable dither, anti-aliased fonts and a new font requester, controllable transparency, the ability to change the screen resolution within the program, coordinates, severe overscan for video compatibility, a genlock mode that disallows the use of color zero, brush rotation and tiling, an expanded palette, AREXX support, X-Specs compatibility, and a new utility program—Transfer 24—that supplies the image processing capabilities of *Digi-View* in a standalone package.

The AREXX support in *Digi-Paint 3* extends to the use of script files and even AmigaBASIC program control through the use of a supplied message-passing program. This means that you could automate the addition of text to image files, the changing of an image file's dimensions, or any other function that *Digi-Paint 3* offers.

NewTek has offered an upgrade path for owners of other paint programs. If you own *Photon Paint*, *Deluxe Paint I* or *II*, *Deluxe PhotoLab*, or *Express Paint*, tear out any page from that program's manual, and send it to NewTek with $55.95 and you'll get a *Digi-Paint 3* package. NewTek says that this offer expires at the end of November.

Mac-2-Dos

Central Coast Software has released *Mac-2-Dos*, a file conversion utility that lets your Amiga (with the aid of a Mac-compatible drive) read and write Macintosh format disks. If you need to move files back and forth between an Amiga and a Mac, this is the first-class way to do it.

The file conversion options are extensive. You can convert ASCII files, PostScript files, *MacPaint* and IFF ILBMs, and MacBinary files. If you use *ProPage* to create PostScript output to disk, you can now transfer those PostScript files to Mac format disks for easier printing at laser parlors. You can also gain access to the huge base of Mac PD clip art files, both bitmapped paint files and PostScript files.

The package includes software and a hardware adapter that connects to the floppy drive port of your Amiga and provides a port for connecting a Mac-compatible floppy drive. A version of the package that includes a Mac-compatible floppy drive is also available. This version of the package includes a device driver that allows you to use the Mac-compatible drive to read and write AmigaDOS disks.

Mac-2-Dos shows the same fine polish that other Central Coast Software packages have. When converting Mac files to the Amiga, you can have an Amiga icon created for the file and set the tooltype so that when you click on the icon, the correct application is run to utilize the file. Conversely, moving from the Amiga to the Mac, you can again create an icon and also set the creator type to call the correct application when you click on the icon.

You can also select a set of files using the mouse or via filenames using wildcards. You can bring up file information on each file, and if it is a text file you can display the text onscreen. You can even format disks in Macintosh format. Naturally, *Mac-2-Dos* supports multitasking, runs on any Amiga, and can be installed on a hard disk just by dragging its icon.

Upgrade plans for the program include support for viewing image files; conversion of PICT/PICT2 format, TIFF format, SMUS/SMF format, RFT/DCA formats, and conversion of Mac fonts and *HyperCard* stacks.

UltraCard

The conversion of *HyperCard* stacks may come in handy, as Intuitive Technologies has released *UltraCard*, a hypermedia information construction environment for the Amiga. Modeled on *HyperCard* for the Mac, *UltraCard* adds color graphics, AREXX support, and multitasking. *UltraCard* also supports the use of laser video players, genlocks, and could provide the cornerstone for an Amiga-based interactive video authoring system.

UltraCard has a long way to go before it can be seen as a counterpart of *HyperCard* on the Mac. *HyperCard* is distributed with every Mac sold; *UltraCard* is a separate product. *HyperCard* is directly supported by Apple, *UltraCard* was created by the same developer who produced *MaxiPlan* (which passed through several distributors and went through far too many bug-fixing releases to be considered a stable product for far too long a time). *UltraCard* holds promise, but it's too early to consider it a serious contender.

If you need to move files back and forth between an Amiga and a Mac, Mac-2-Dos is the first-class way to do it.

ProWrite 2.5

New Horizons has released an upgrade to *ProWrite*, version 2.5. The upgrade includes mixing of printer fonts and graphics on the same page, improved typing speed, interactive spell-checking, user-definable page sizes, toggle-able top and bottom margins, centered tab stops, conversion of linefeed delimited files, a new design to the user interface, and two utilities for converting files from other word processors to *ProWrite* format and for moving fonts and other system files between disks.

The upgrade cost will also include a free upgrade to version 3.0 when it ships. Contact New Horizons for information on upgrade costs.

Commodore's Ad Campaign

The new Amiga ads have hit. If you haven't seen the television ads yet, you are in for a surprise. Produced by George Lucas, these are the most professional ads Commodore has ever released, and should go a long way towards moving Amigas out of the stores and into the users' hands. You should also be seeing the new print ad campaign in most major magazines.

Commodore has spend a bundle on this new advertising direction, and needs to see it pay off. Apple has dropped the ball on the home market, IBM is poised to make a major move in that direction, and Commodore's window of opportunity is fogging over fast. The first calendar quarterly reports should tell the story; let's hope it's a happy ending. ■

Resources:

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Intuitive Technologies
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Monterey, CA 93940

New Horizons
PO Box 43167
Austin, TX 78745

Copyright ©1989. All rights reserved. Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

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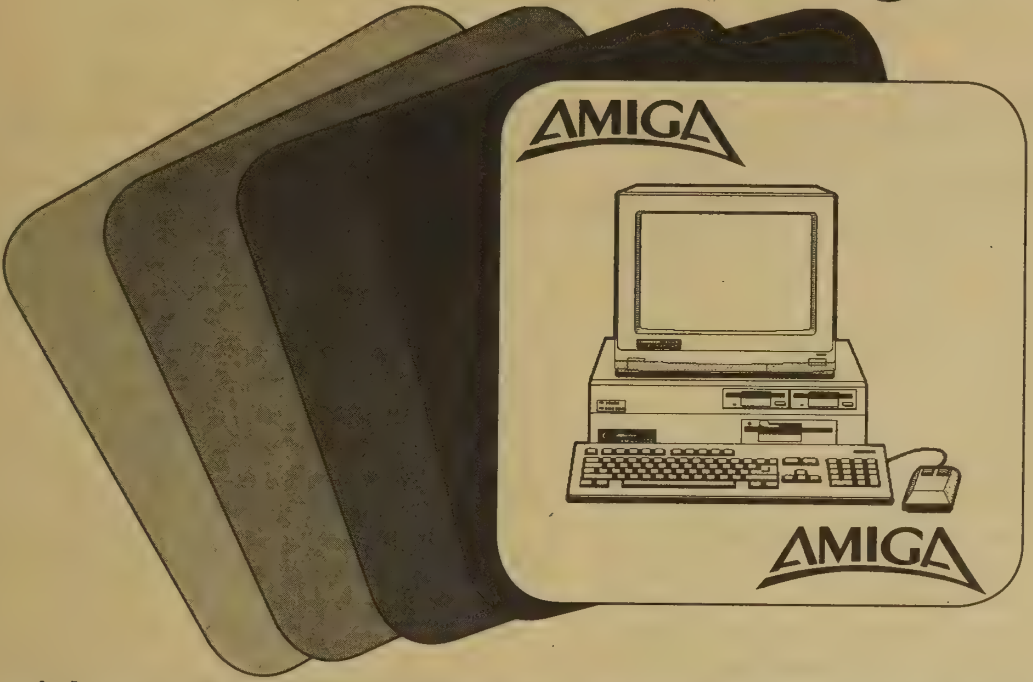

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UNIX

BY BENNETT FALK

Thirteen Ways Of Looking At A Benchmark

The Sun 3/80 Meets The NeXT And The Sun 386i

By Bennett Falk

The powers that be have smiled on our friend Hapless User. After his Asian adventures earlier this year, he recently returned to Emeryville to find Jim's Tavern replaced by the Milano Cafe and his ASCII terminal replaced by a workstation, a Model 3/80 from Sun Microsystems. It has a Motorola 68030 processor running at 25 MHz, a 68882 floating point processor running at 20 MHz, 8 Mb of memory, a nifty SCSI hard disk, and release 4.0.3 of Sun's implementation of UNIX. Being no fool, he ordered a double cappuccino to go, and ensconced himself at the workstation's keyboard to run a set of benchmarks and figure out what sort of performance this new machine would deliver.

The tests Hapless used are a slightly modified version of the tests published by David Hinnant in his article "Benchmarking UNIX Systems" in the August, 1984 issue of *BYTE* Magazine. The tests measure performance for CPU intensive activity, disk access, multi-user activity, and repeated program compilation.

Hapless's new computer breezed through ten repetitions of the tests, and he wrote a small shell script to calculate the average time for each test. He printed out the results and sat back to sip his coffee and admire his new machine's performance.

Yes, But What Do These Numbers Mean?

On the faces of the powers that be, however, the line between smile and smirk is exceedingly thin. Hapless found that, in the single column of figures he had produced, he did not know what was admirable and what was not. In fact, the more he looked at the numbers, the less they meant.

Hapless decided that he needed results from comparable workstations, and he set out to benchmark other machines on the network to which his 3/80 was attached. Without much effort, he found a Sun 386i with a 25 MHz 80386 processor and a NeXT with a 25 MHz 68030 and the 1.0 version of Mach. Both machines had 8 Mb of memory and SCSI disk drives. Gleefully Hapless moved the benchmarks to these machines, ran the tests, printed the results, and sat down to squeeze whatever significance he could from the numbers. (Hapless's results are reproduced in Tables 1-4.)

He was dismayed to learn that his 3/80 was the slowest of the three machines. The NeXT, with the same processor, was markedly faster on the tests that exercised the CPU. On average, the NeXT finished the "sieve" and "loop" tests in roughly half the time the 3/80 required. The NeXT also seemed to have an advantage on tests that involved lots of disk access, including the repeated calls to the C compiler. The 3/80 had a modest advantage as the number of users increased in the multi-user tests.

Hapless puzzled long and hard over the 386i's results. The 386-based machine achieved significantly better times than the 3/80 on some of the CPU tests and only marginally better results on others. It seemed to have a faster disk than the 3/80, but this advantage did not translate into speedier compiling. Most curious of all, the 386i performed the multi-user tests in less time than either of its rivals.

Hapless tried to make sense of these results, but after several minutes of earnest analysis, a reverent, slightly awed voice inside his head said, "Wow, the NeXT is a really amazing machine."

There was a brief pause before a much different voice responded, "Why do you say that? Just because it's got good numbers?"

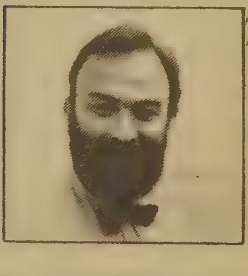
"Well, y'know, those really *are* good numbers!"

A third voice chimed in. "Yes, but do good results on these tests really mean the thing is a better workstation?"

"Good results are good results," a peevish fourth voice shot back. "A workstation is just like any other computer. It does processing and it does disk I/O. If you do those things better, you're a better workstation."

Other voices chimed in. "Well, I'm not a workstation. I'm a workstation user, and I've used all three of these machines, and once you start moving things around with the mouse and opening windows and running programs and stuff like that, they all feel pretty much the same."

"What does *that* mean?"



Copyright © 1989 by Bennett Falk. All rights reserved. Bennett Falk lives in the Bay Area, writes when he can, and hopes for the best. He works for Sybase, but the opinions and attitudes expressed here are his own.

> **"I have to wait about the same time on all these computers for a window to open up. All the blazing CPUs in the world don't mean diddly if I have to wait for my windows to open up."**

Table 1: CPU Intensive Tests

	Sun 3/80	Sun 386i	Next 1.0
Executing sieve 100 iterations 1899 primes.			
Real	7.28	5.75	3.44
User	7.12	5.21	3.27
System	0.09	0.1	0.01
System Call			
Real	2.41	2.07	2.01
User	0.59	0.16	0.06
System	1.73	1.71	1.81
Loop Test			
Real	1.22	1.11	0.6
User	1.07	.9	0.5
System	0.1	0.04	0
Function Call Overhead			
Function Call			
Real	0.24	0.25	0.11
User	0.12	0.11	0.1
System	0.04	0.04	0
Assignment			
Real	0.19	0.1	0
User	0	0.01	0
System	0.07	0.03	0
Overhead	0.05	0.15	0.11

Table 2: Disk Intensive Tests

	Sun 3/80	Sun 386i	Next 1.0
Disk Write			
Real	0.62	.42	0.43
User	0	0	0
System	0.45	0.29	0.2
Disk Read			
Real	0.51	0.3	0.41
User	0	0	0
System	0.26	0.2	0.33
Pipe Test			
Real	2.2	1.37	1.5
User	0.05	0	0
System	1.04	0.63	0.71

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"It means that I have to wait about the same time on all these computers for a window to open up. All the blazing CPUs in the world don't mean diddly if I have to wait for my windows to open up."

"Look, you just can't rely on perceived performance. You have to have something measurable if you want to make these comparisons."

"I'll give you measurable! I'm gonna get a stopwatch and clock how long it takes my windows to open."

"But what about differences in display technology? You can't just time window operations if the computers you're comparing have to do different amounts of work to open up a window of fixed size."

"Somebody open a window. I need air."

The voices began to tumble over each other more rudely now. "Hey, what about..."

"...price/performance ratio? I'll bet the 3/80 is the cheapest of these machines."

"...business users?"

"...how fast can it recalculate a spreadsheet?"

"...no, format a document!"

"...MIPS."

"...MFLOPS!"

Hapless opened his eyes and resolved to lay off caffeine. Somewhere the powers that be broke into outright, prolonged laughter. ■

Table 3: Multi-User Tests

	Sun 3/80	Sun 386i	Next 1.0
Shell (one user)			
Real	2.29	1.89	2.14
User	0.24	0.15	0.01
System	0.84	0.74	0.87
Shell (two users)			
Real	3.99	3.76	3.93
User	0.51	0.37	0.11
System	1.65	1.5	1.75
Shell (three users)			
Real	5.75	4.92	5.66
User	0.68	0.51	0.18
System	2.55	2.3	2.62
Shell (four users)			
Real	7.31	6.53	7.64
User	0.94	0.66	0.24
System	3.42	3.11	3.55
Shell (five users)			
Real	9.04	7.61	9.85
User	1.16	0.89	0.33
System	4.34	3.77	4.41
Shell (six users)			
Real	11.4	9.41	11.59
User	1.44	1.05	0.39
System	5.29	4.59	5.33

Table 4: Compiling the Test Programs

	Sun 3/80	Sun 386i	Next 1.0
Compiling dwrite.c			
Real	4.02	3.73	3.33
User	1.34	0.7	1.32
System	1.4	1.28	1.01
Compiling dread.c			
Real	3.56	3.2	3.3
User	1.44	0.71	1.37
System	1.29	1.27	1.01
Compiling fcalle.c			
Real	3.22	2.81	2.56
User	1.05	0.46	0.87
System	1.27	1.24	0.91
Compiling fcalla.c			
Real	3.04	3.34	2.53
User	0.98	0.39	0.79
System	1.26	1.28	0.93
Compiling loop.c			
Real	3.1	3.09	2.45
User	1.02	0.41	0.77
System	1.28	1.2	0.94
Compiling pipes.c			
Real	3.42	3.02	2.72
User	1.23	0.59	1.02
System	1.34	1.24	0.96
Compiling scall.c			
Real	3.12	3.03	2.44
User	1.01	0.41	0.8
System	1.28	1.23	0.97
Compiling sieve.c			
Real	3.54	3.17	2.66
User	1.38	0.59	0.99
System	1.29	1.23	0.94

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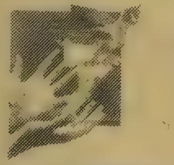

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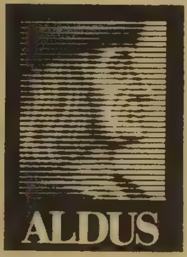

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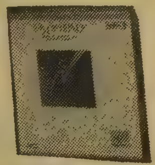

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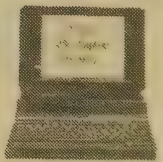

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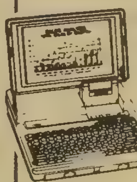

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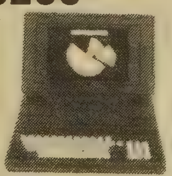

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ATARI ST

BY DAVID HAWKINS

Getting Down To Business

If you read this column on a regular basis, you might get the impression that the Atari ST is mainly for telecom, games, and word processing. Unfortunately, those are my main interests. There are a lot of other good programs out there for the ST that I don't have the skill to review.

For example, the Atari has MIDI ports, and there are a number of good music programs available. I just don't know very much about music. If you've used a music program and recommend it, then write me, care of *MicroTimes,* and I'll mention it in a future column.

Business Software

A wide variety of programs fit under the heading of "Business Software." There are a number of spreadsheets and database programs that can be used in business—as well as word processing and telecom applications. (Trying to justify the purchase of games as a business expense is often futile, however.)

Inventory Control

Keeping track of inventory is a major concern of most businesses. Beckemeyer Development Tools (478 Santa Clara Avenue, Suite 300, Oakland, CA 94610, 415/452-1129) has an integrated series of programs called Business Solutions Series for use in retail business. I'll be referring to the program as *POS*—"Point of Sale."

Inventory control involves knowing what you have sold, what you need to order, and what you have received. *POS* concentrates on the Point of Sale: if you know know exactly what has been sold and at what rate, you can make better decisions about what to order.

A lot of small businesses fail because they don't keep track of their money and their inventory. If a program like this will help you get a realistic picture of your company's condition, then it might be a valuable tool.

Managing Data

POS keeps track of a number of files. When an item is sold, a record is made in the Sales file, a note is entered to the Inventory file, an invoice is printed and recorded in the Invoice file, and the customer is added to the Customer file.

The program keeps track of all of this automatically. It's designed to make it easy for the salesperson to enter the essential data correctly so the files will be accurate at all times. *POS* uses keys for a few simple functions, and those keys are not adjacent, which makes it less likely that the salesperson will hit the wrong key.

Using Data

Other parts of *POS* use the data files to determine when new stock should be ordered, to print out the purchase orders, and to keep track of vendors. *POS* also keeps track of what is owed to the vendors. You can have the program print up various financial statements, which can help give you an accurate picture of the condition of your business.

Security

POS allows you to create separate accounts for the various individuals who will be using the program. The manager of the program has access to all the functions, while the salesperson can only enter sales and make changes in the Accounts Receivable section of the data. A purchasing agent can only use the parts of the program having to do with purchasing and inventory control. Each of the people using the program has a unique password that the manager can assign.

Tips

The *POS* manual includes some advice that is helpful with most applications. Exit the program completely before turning the computer off. Make regular backups of the data files.

Next Step

If you are interested in using an Atari in your business, the next step would be to check with a dealer or a user's group about what would be the appropriate software for you. It's worth the time and energy to check out what is available.

Portfolio

Quantities of Atari's Portfolio are starting to get to the stores. The Portfolio is about the size of a VHS videocassette tape, and the basic unit sells for around $400. It's a DOS 2.11 system, with several built-in programs. These programs include an address book, a calculator, a diary, text editor, and a worksheet. The address book can dial the telephone for you—just hold it up to the phone and it sends the tones. It's possible to add both a serial and a parallel port to it, as well as memory cards. ■

Inventory control involves knowing what you have sold, what you need to order, and what you have received. POS concentrates on the Point of Sale: if you know know exactly what has been sold and at what rate, you can make better decisions about what to order.

Copyright © 1989 by David Hawkins. All rights reserved. *David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco. Both monitors, an Okimate 20 color printer, and disks all over the room.*

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MAC @ WORK

The State Of Mac OCR

Three Programs To Help You Avoid Rekeying Your Paper Documents

By Helmut Kobler

You probably don't use your Macintosh very long without typing some sort of information from paper to the computer. You could be transferring hard-copy phone lists into a database, extracting a lengthy quote from a book, filling old numbers from a general ledger into *Excel*, or rekeying a newsletter story that's been—God forbid!—typed, instead of composed electronically for easy pouring into *PageMaker*.

In all of these situations, through the monotony of typing character after character, it probably occurs to you that if computers are such great timesavers, then why are you sitting here typing this stuff, instead of concentrating on the more important aspects of your work?

Introducing OCR, for Optical Character Recognition, a technology that teaches your Mac to quickly read letters and numbers from paper into electronic text files your Mac's programs can work with.

Of course, OCR is not new news to the Macintosh, which has known how to "read" for a few years already. But the earlier technology was too fussy about the sort of characters it read: at its best, early OCR could understand the type from popular office typewriters, with lots of space between lines, and in single columns. If you had anything else in mind, such as the tight-fitted typeset characters in books, newspapers and magazines, you were obligated to start your finger warm-up exercises.

In the last year, however, Mac OCR has taken a turn for the better. Products like Olduvai's *Read-It!* 2.0, Caere's *OmniPage*, and CTA's *TextPert* claim to read characters in everything from your typewriter to your books and magazines, in narrow columns, and even keep graphics and pictures intact. Besides this flexibility, their speed is appealing, often clocked between 200 and 300 words a minute—enough to make your fastest typing look like a clumsy hunt-and-peck.

But how practical is this technology? If you hope never to rekey another character again, forget it. As developed as it is, OCR is still shaky enough to not avoid typos, and require a little doctoring-up on your part.

OCR is not new news to the Macintosh, which has known how to "read" for a few years already. In the last year, however, Mac OCR has taken a turn for the better.

Besides that, outfitting your Mac with the right OCR equipment is not cheap. First, you'll need a "scanner," one of those photocopier-like peripherals that digitize paper images into MacData. Units large enough to scan a letter-sized sheet, such as the Apple Scanner, cost around $1700.

Then there's the cost of the OCR software that interprets the characters your scanner reads—the high-end *OmniPage* and *TextPert* cost $795 and $995, respectively. On a lighter note, you can seriously reduce your costs with less robust scanners and software; *Read-It!* costs $495, and you can use it with hand-held scanners such as Thunderware's LightningScan or Logitech's ScanMan. Both units cost around $500, but the drawback is that they only scan areas about 3 1/2" wide, which restricts you to columns of text, rather than full pages.

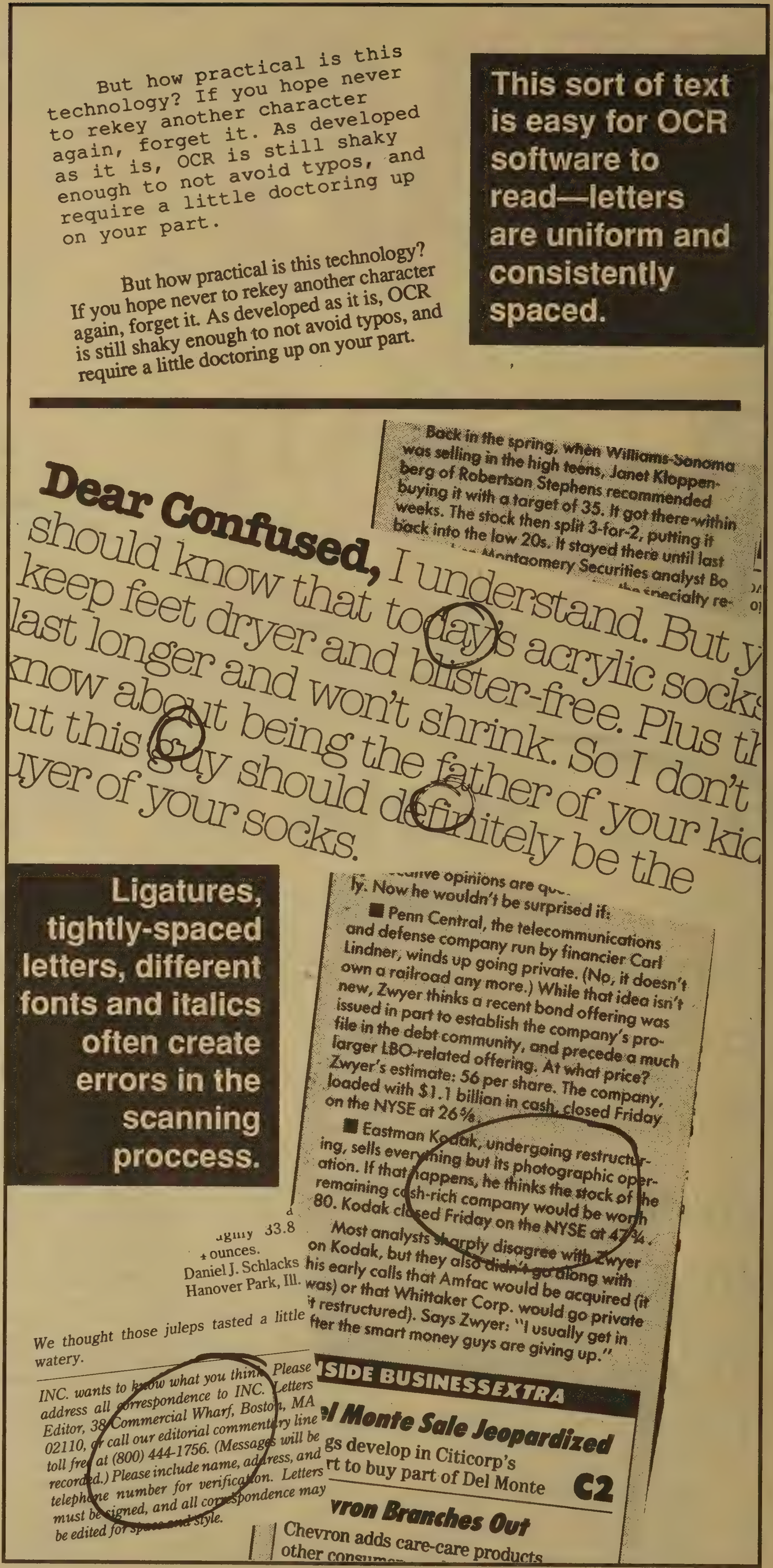
Even at its cheapest, though, Mac OCR isn't cheap, so be sure you're not lured by its "neato"quality alone. Retyping an occasional story for your newsletter may be tedious, but it doesn't really justify spending hundreds of dollars to avoid.

To really get your money's worth, you should have definite large-scale, or at least frequent, projects ahead of you. Say, for instance, you're working in a small law office that's moving thousands of pages of typed depositions to Microsoft *Word*. Or you're converting your company's conventionally typeset sales catalog—300 pages worth of product descriptions and price lists in all—to *PageMaker*. Or, in another desktop publishing scenario, you might expect to regularly convert text over to the Mac in making-over brochures, annual reports and the like. It's this sort of bulk and frequency that make OCR worth-while.

If you hope never to rekey another character again, forget it. As developed as it is, OCR is still shaky enough to not avoid typos, and require a little doctoring-up on your part.

Read-It!, *OmniPage*, and *TextPert* make up the low and high spectrum of the Mac OCR business. And as their varying prices suggest, there's a big difference in how they work. But the initial steps of starting your Mac reading on its merry way are the same. Your first step is to scan a text page with your scanner and its specific software. Treat it just as if you were scanning a picture—place the page face down on the scanner, and click the "scan" button. When your scan is finished, just save the image as a TIFF file, and you're ready to run your OCR software.

If you've got a mainstream scanner brand, such as Apple or Microtek, you don't even have to scan your documents with separate software—all three of the packages we're talking about in this review have drivers for popular models to let you scan pages with the OCR software itself. If you've got an offbeat model, however, you're not out of luck: just scan with its software, and then import the TIFF file into your OCR program later.



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This sort of text is easy for OCR software to read—letters are uniform and consistently spaced.

Back in the spring, when Williams-Sonoma was selling in the high teens, Janet Kloppenberg of Robertson Stephens recommended buying it with a target of 35. It got there within weeks. The stock then split 3-for-2, putting it back into the low 20s. It stayed there until last

Montgomery Securities analyst Bo

specialty re-

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know about being the father of your kid

ut this guy should definitely be the

uyer of your socks.

Ligatures, tightly-spaced letters, different fonts and italics often create errors in the scanning proccess.

opinions are qu

ly. Now he wouldn't be surprised if:

■ Penn Central, the telecommunications and defense company run by financier Carl Lindner, winds up going private. (No, it doesn't own a railroad any more.) While that idea isn't new, Zwyer thinks a recent bond offering was issued in part to establish the company's profile in the debt community, and precede a much larger LBO-related offering. At what price? Zwyer's estimate: 56 per share. The company, loaded with $1.1 billion in cash, closed Friday on the NYSE at 26⅝.

■ Eastman Kodak, undergoing restructuring, sells everything but its photographic operation. If that happens, he thinks the stock of the remaining cash-rich company would be worth 80. Kodak closed Friday on the NYSE at 47¾.

Most analysts sharply disagree with Zwyer on Kodak, but they also didn't go along with his early calls that Amfac would be acquired (it was) or that Whittaker Corp. would go private

it restructured). Says Zwyer: "I usually get in

fter the smart money guys are giving up."

33.8

ounces.

Daniel J. Schlacks

Hanover Park, Ill.

We thought those juleps tasted a little watery.

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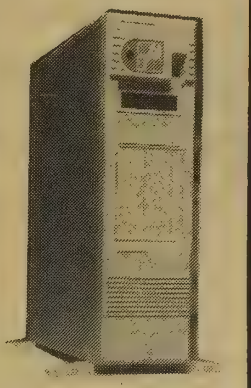

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What if you have lots of pages to scan? Will you have to manually feed page after page into your scanner? Unfortunately, there's no complete solution to easily scanning multiple pages: a few companies sell automatic paper feeders for scanners (Hewlett-Packard sells a model specifically for its ScanJet, too) but they cost about $799, and feed only about a dozen or two pages at a time. Besides, since every page you scan is a full-page, memory-hungry TIFF file, you may find your hard drive running out of room after the first several scans. In other words, life won't be too easy if you're scanning lots of pages.

After your pages are scanned, however, how smoothly your Mac reads depends solely on the software you've picked.

Read-It!

If the high-priced *OmniPage* and *TextPert* look like budget-breakers, then you're a prime candidate for Olduvai's $495 *Read-It!* 2.0. *Read-It!* is sort of a carry-over from the earlier OCR products for the Mac in the way it recognizes characters. The program uses a technology called "matrix matching," which examines a scanned character and compares its shape to a built-in library of upper- and lowercase letters of the alphabet, numerals, and punctuation marks. Each character in *Read-It!*'s library is like a bit-mapped graphic, built with tiny dots laid out on a matrix. When *Read-It!* finds a library character that closely matches the look of your scan, it assumes it's found a match, enters that character into the text file it's creating for you, and then moves on to the next character.

The drawback to this approach is that *Read-It!* needs a library not only for every character that you expect it to understand, such as a "!" and "H" and "p", but also requires a separate library for every specific typeface, in every specific style and weight, and in every point size you scan. For instance, to interpret a text selection featuring Times and Times Italic in 12 points, along with headers in Helvetica 14 and 16 points, *Read-It!* would need four character libraries on-call.

In the case of reading Times and Helvetica in standard sizes, *Read-It!* spares you much sweat by including pre-built type libraries for the 35 standard LaserWriter NT fonts, typefaces used in popular typewriters, and those used in newspapers and magazines such as the *New York Times*, *Business Week*, and the *Wall Street Journal*. But if you don't already have a pre-built library to accommodate the fonts you're scanning, it's up to you to create one from scratch—not the least tedious thing you'll ever do. In fact, if you expect to work with a variety of fonts, *Read-It!* is likely to be a burden.

Introducing *Read-It!* to a new type font involves a thorough question-and-answer session. When the program meets a character in a font it doesn't recognize, it prompts you to type the letter or number that corresponds to the character—for instance, you would tell *Read-It!* to recognize an oval symbol as an "o", and a tall vertical stroke as an "l".

It's not unusual to also teach *Read-It!* how to interpret typographic ligatures, sets of two characters which touch and intrude on each other's space. In the word "major," for instance, the curved, descender stroke of the "j" may look like it's about to scoop up the "a" preceding it. To *Read-It!*, characters at such close quarters look more like one unit, so you'll also have to teach the program to actually recognize them as "a" followed by "j".

> **Read-It!'s library approach isn't practical if you scan a variety of fonts. But many OCR projects actually involve large numbers of pages, in the same few fonts.**

Read-It!'s learning curve starts to level off once you've taught it a few characters—after it learns its first "h", it usually picks following occurrences of "h" out by itself, and so on. But still, count on spending about an hour to teach *Read-It!* a full-character library. Then you can save it and quickly call it up the next time around.

Obviously, *Read-It!*'s library approach isn't practical if you scan a variety of fonts. But many OCR projects actually involve large numbers of pages, in the same few fonts. In these circumstances, your extra training effort is really a one-time investment, making *Read-It!* a good buy at $495.

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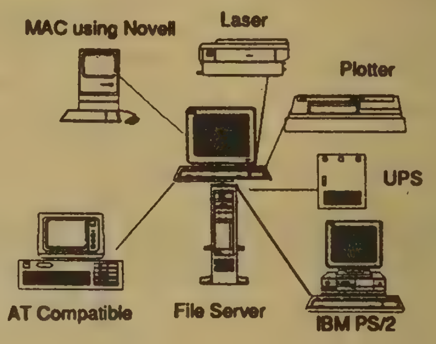

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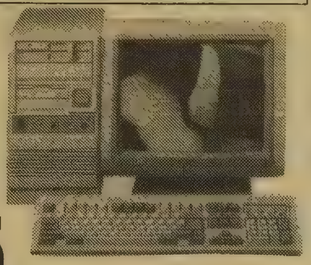

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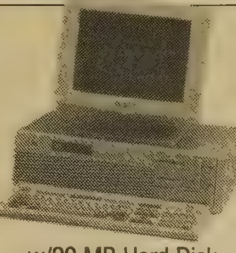

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Heavyweights: OmniPage And TextPert

If you expect your OCR font diet to be varied and changing, though, you'll look to *OmniPage* ($795) or *TextPert* ($995) for help. For the money, these two packages use a smarter OCR technology, called topological recognition, that spares you the worry of juggling character libraries. Unlike *Read-It!*'s matrix-matching, the topology approach, in laymen's terms, looks at the general shape of a character and makes a guess at its identity.

Since an "A" looks pretty much the same, whether it's set in Avant Garde or New Baskerville, *OmniPage* and *TextPert* can read characters regardless of their typeface. A character's size is also no longer a distinction; *TextPert* understands type from 6 to 46 points, while *OmniPage*'s scope spans from 8 to 72 points.

Unfortunately, topological recognition is not a perfected science yet. *OmniPage* and *TextPert* both claim to have miniscule error rates—somewhere between a half and two percent—but these apply more when scanning simple, laser-printed letters set in Courier, for instance. Feeding both packages a number of different documents—everything from a Penguin college textbook to a column from *Time* magazine—produced enough errors to require a spell check, as well as a close browsing through the final text file. Use neither of these in blind faith.

The culprit here, I suspect, is having to deal with typeset characters, which are often fit so closely together that they confuse your OCR software. *OmniPage* especially had problems recognizing ligatures—two characters that actually touch—as well as italicized type, which is also tightly squeezed.

For this, CTA's *TextPert* comes out slightly ahead for performance, because it not only recognizes characters on its own, using the topological technology, but also lets you teach it to recognize problem characters, just as Olduvai's *Read-It!* So under challenging conditions, *TextPert* still reads most characters without forcing you to build libraries for each and every font that crosses its path. But at the same time, it provides that learning safeguard, which lets you avoid some of the occasional surprises *OmniPage* springs.

Besides this, *OmniPage* requires four megs of RAM—expensive, if you don't have that resource—and also insists that your Mac be outfitted with a 68020 or 030 CPU, which leaves out Mac Plus and SE owners. *TextPert* ran swiftly on a 2 Mb Mac II in my tests, and also works with Pluses and SEs, although it lagged a bit in processing pages, making a Mac II or SE/30 the recommended system.

At about $1,000, *TextPert* is probably the most expensive software you've ever considered. But if you're trying to read pages and pages, in a variety of fonts, it's the package to get. *OmniPage* may be $200 less, but that's a small difference considering that it doesn't learn from its mistakes, and requires a whopping four megabytes, which spells an additional investment for most Macs. ■

At about $1,000, TextPert is probably the most expensive software you've ever considered. But if you're trying to read pages and pages, in a variety of fonts, it's the package to get.

Resources:

Read-It! 2.0, $495
Olduvai Corp.
7250 Red Road, Suite A
South Miami, FL 33143
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TextPert 3.0
CTA, Inc.
866 Second Avenue
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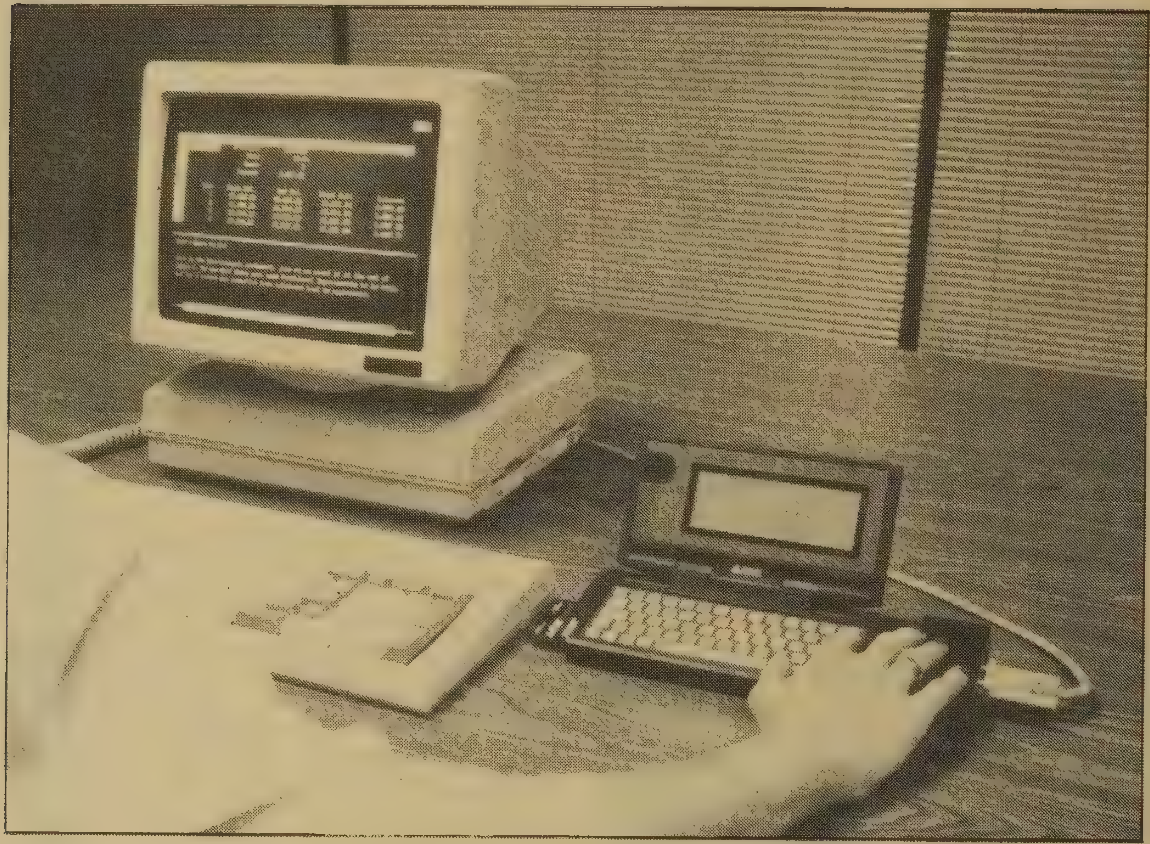

About the size of a video cassette, the Portfolio runs your favorite DOS-based desktop applications.

> **Portfolio is run by a CPU operating a little faster than the original IBM PC, and the operating system is compatible with MS-DOS 2.11. This means that you can run many of your favorite programs inside this unit, although the machine comes with a built-in word processor, diary, address book, calculator, and spreadsheet.**

Add-Ons

Because Portfolio has not yet been shipped—and should be available by the time you read this—I do not have a full complement of accessories to evaluate. The basic computer comes with 128K of RAM. Through the use of Memory Expansion Plus ($229.95) and other memory accessories, it will be possible to increase this up to 640K. The accessories also include serial ($79.95) and parallel ($49.95) port interfaces which plug into a 60-pin connector on the side of the Portfolio.

Although there are no disk drives on the unit, Atari has built a slot into the side of the computer that will accept memory cards. These are about the size of a credit card and slip in place easily. Then they can be accessed just like a disk drive. I tested a 128K card ($199.95), but they will also be available in 32K ($79.95) and 64K ($129.95) capacities as well. These memory cards allow you to store data or use application programs. The memory cards each have a battery to maintain their data. These batteries are supposed to last one year. Each card also has a switch which allows you to write-protect its contents.

Atari has a whole range of products to set this unit apart from the gadgets. There will be a PC Memory Card Drive ($99.95) that fits into a PC expansion slot and facilitates the transfer of data between the Portfolio and your deskbound—as Atari likes to call it—computer. An AC power supply ($9.95), while hardly necessary, will be available.

Applications

But most importantly, there are a number of applications built into Portfolio. Each application is powerful, but if you choose to run your favorite programs, that is also possible through the use of memory cards or the downloading of programs into the main memory.

The Address Book lets you enter names and addresses as well as phone numbers. Recalling the data is easy, as a search feature is built into the program.

But the most innovative addition to this program is the ability to use Portfolio as a telephone dialer. When you select the dial option, the computer will generate tones that are understood by the phone system. Simply hold the computer next to the mouthpiece of any tone dial phone and press the dial key.

The Calculator is a sophisticated module that lets you use it for simple math problems, but also works as a scientific calculator or in an engineering mode. You can even review and edit the tape. Of course the calculator does square roots, factorials, and a host of other functions. The program also has five memories.

The Diary comes up with a calendar of the current month. Through the cursor keys, you can move backward and forward through the months and to specific days within any month. You can then press a key to take you to a calendar of a particular day. This will contain an appointment schedule and notes that apply to that date. An alarm function is also built in and can be set for annual, monthly, weekly, or daily reminders, as well as one-of-a-kind events drawn from the daily entries.

The Text Editor is an ASCII editor and formatter which will allow you to prepare documents, as well as send them to a printer. Standard features include search and replace, load, save, and merge. Word wrap may be set to any length line. Although the screen is limited, it is possible to configure this and many other programs to either work within the confines of the 8 X 40 screen or within a 25 X 80 format, scrolling around to different portions of the screen. This is helpful if you import files created on a desktop system.

The Worksheet is a spreadsheet program that is for the most part compatible with *Lotus*. This means you can take along work downloaded from your primary computer, and also export work done on the Portfolio to your *Lotus* spreadsheets.

The final built-in program is Setup, which allows you to customize Portfolio hardware and software to your needs. This program covers all of the standard things you will expect. But you can also select the language you will work in from this program. Portfolio supports English, French and German, so Atari is clearly looking at an international market for the product.

To cap things off, there is an optional printer output. Atari was not kidding around when it designed this computer.

Conclusions

Portfolio comes with an owner's manual of well over 200 pages, so you can see that I've described this machine in just the broadest outlines.

While this unit has a specialized niche market, it may well turn out that the niche is a good deal larger than anyone suspects. For myself, I am impressed with this machine and would certainly want one if it were a little LARGER. (Atari Portfolio $399.95. Atari Corporation, 1196 Borregas Avenue, Sunnyvale, CA 94088-3427, 408/745-2000) ■

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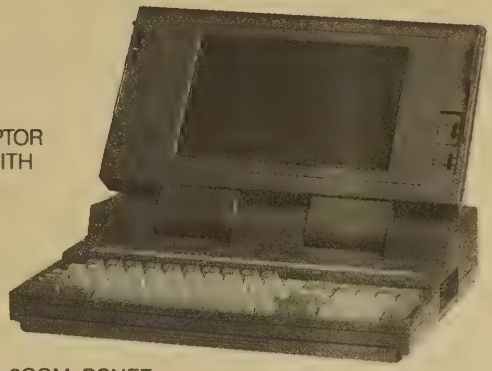

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USER GROUP NETWORK

BY MARY EISENHART

UNIX Time In The Southland

Well, UNIX seems to be hot stuff in the South this month. We've received mail from two new groups, and so we hereby pass the information along to you.

Rich Bergstedt of AT&T in Irvine proudly announces the formation of **UUASC**, the **UNIX Users Association of Southern California.** "UUASC exists to promote understanding, appreciation, and the productive application of the UNIX Operating System and its derivatives," reports Rich. "UUASC's monthly meetings feature vendor demonstrations, UNIX-related tutorials and an open forum for questions. We have a strong desire to improve communication among commercial, academic, and other parties interested in UNIX. We support improved connectivity among Southern California UNIX-based hosts.

"UUASC members range from beginners to wizards. Meetings are held on the second Monday of each month." Topics for upcoming meetings include relational databases and (honest!) Recreational UNIX.

Rich adds that the group welcomes technical papers for consideration as meeting topics, with the caveat that presentations should be no longer than 45 minutes. Papers should be submitted to the steering committee at **{conexch, dhw68k, felix, peregrine, spsd, uunet}!zardoz!steering.** You can also be added to the UUASC mailing list if you send an email request to **{conexch, dhw68k, felix, peregrine, spsd, uunet}!zardoz!uuasc-request.** And if you'd like to to talk to Rich himself, you can reach him at (714)727-5231.

Not to be outdone, **Frank Stephan** of PC Craft in Brea is starting a XENIX user group. Himself the president of the Düsseldorf-based **German XENIX Users' Group**, Frank says, "I would like to establish an electronic bulletin board and mailbox for XENIX users to trade ideas, information, and solutions." PC Craft has donated an 80386-based server as the home for this new system.

Meetings will take place on second and last Wednesdays at PC Craft's corporate headquarters, 640 Puente Street in Brea. If you'd like more information, Frank can be reached at PC Craft (714/256-5025) or at home (818/333-8719). Another PC Craft employee, **Eric Chen**, has also volunteered to answer questions at (818)912-3808.

Dave Mark, the president of the new **HP Portovec Computer User Support Group**, invites interested parties to check out the group's meetings on the second Thursday of the month from 7 to 9 pm. They're held at the Hewlett-Packard sales office, 5161 Lankershim Blvd., in North Hollywood, and you can park free in the building's basement. For more info, contact Dave at (818)794-4969.

Amiga users might want to make the northern trek to **AmiEXPO**, reputed to be the Amiga show of the year, which comes to the Santa Clara Convention Center October 20-22. Exhibits, contests, presentations and bargains galore. Call AmiEXPO Associates at (800)32-AMIGA for Expo info.

Orphan computer owners may be interested in a recent article in the newsletter of **ATUNC**, the Apple III user group in Northern California. Written by editor **Li Kung Shaw**, it proposes a **Bill of Rights of Users of Discontinued Equipment**. Somehow we can't see these ideas going over big at, say, Apple, but some of Shaw's proposal will no doubt hit a responsive chord in the hearts of many users.

Among his suggestions: "When the maker of existing equipment discontinues the production and marketing of that equipment, all the patents and trade secrets related to that equipment automatically become property of the public domain. Anybody may use them freely...The owner and user of discontinued equipment should have the right to turn in the discontinued items in exchange for the new ones, discounting the price originally paid...No new equipment intended to replace existing equipment should be allowed to be marketed unless it has been tested by at least one percent of the users of the existing equipment to their satisfaction; this test should be run by the users group of the existing equipment."

If you'd like to read the full text of the BRUDE article, or if you've got a few ideas to fan the flames, you can reach Li Kung Shaw in his capacity as ATUNC Newsletter Editor at PO Box 16427, San Francisco, CA 94116, (415)731-0829.

As always, keep that mail coming. Send the US Mail to User Group Network, 5951 Canning Street, Oakland, CA 94609. Send the electronic variety to **MICROTIMES** on MacNET or **{pacbell, hplabs, ucbvax, apple}!well!microx** on uucp. Our fax machines also await your call at (415)652-4618 or (213)467-5486. See you next month. ■

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Don's Dental Service. (209)239-4828. 8-N-1, 24 hrs, 1200/2400. Online dental supply catalogs, No. CA Society schedules, post-graduate course schedules from UCLA, UOP, and Cal. Free. Sysop: Don Carlson.

Night Rider BBS. (209)432-4458, 24 hrs, 1200/2400. Two lines running FX-BBS. MS-DOS 100+ meg. Real-estate and business oriented. Upload and download from a large P/D files section. No fee, no registration required. Sysop: Jim Avey.

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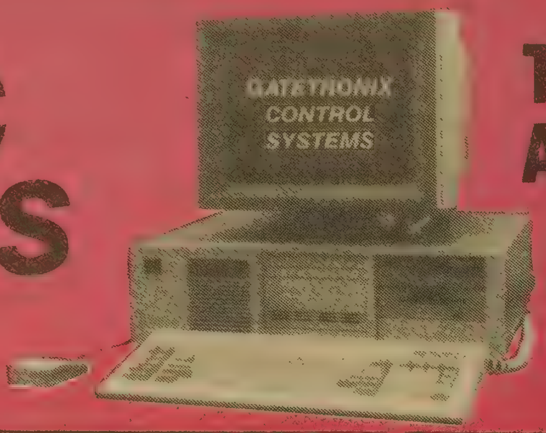

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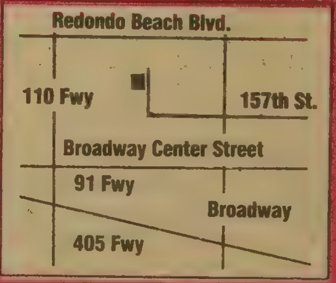

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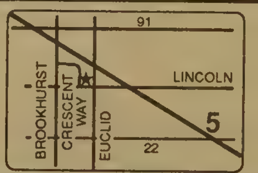

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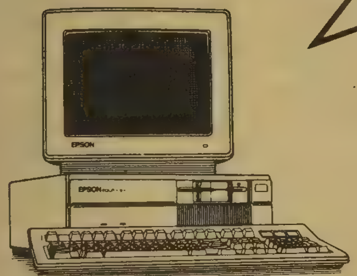

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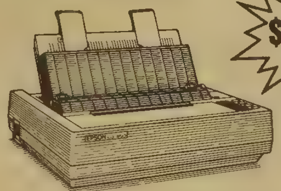

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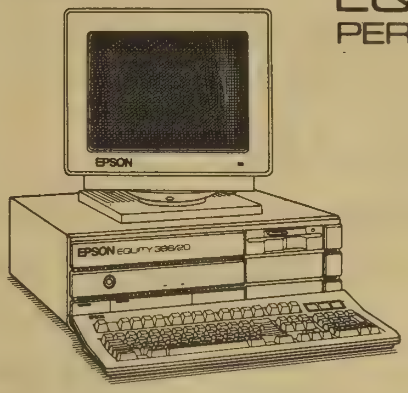

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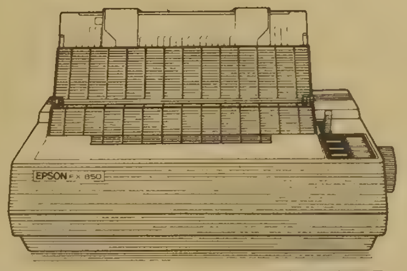

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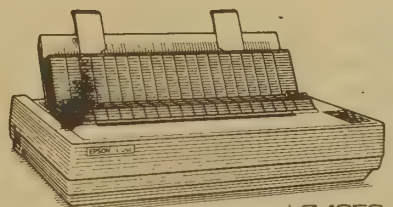

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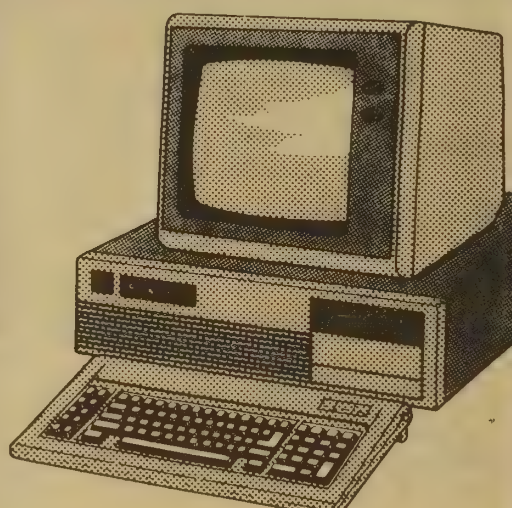

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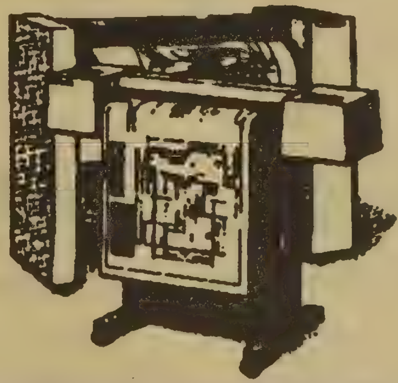

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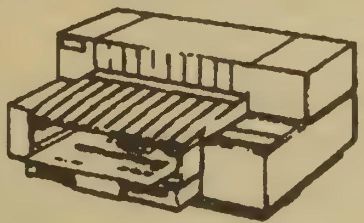

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1139/South. (714)545-1706, 1200/2400/9600. 38 internationally echoed conferences, 110 Mb storage, USR HST support, official Qmodem distribution site. Sysop: Kevin Collins.

ACAOC OrnJuce BBS. (714)540-7378, 24 hrs. 300/1200/2400. Sysop: Atari Computer Association of Orange County.

Adventurer's Castle. (714)871-4119. 300/1200 24 hrs. Real time gaming. Sysop: William E. Hart.

Amiga Friends. (714)870-4754. 300/1200/2400 24 hrs. Run by one of S. California's largest Amiga clubs. Special interest sections, downloads, club activity information. Sysop: Scott Thayer.

Amiga Inn. (714)272-5881. 24 hrs., 300/1200/2400. Sysop conference, large BBS lists, programming, downloads, more. Sysop: Steve Snyder.

Best Friends BBS. (714)964-0083, 24 hrs, 300/1200/2400. Multi-line, multi-user. Chat mode, public boards, on-line travel tips, discounts, special events, pool parties, and MORE! Sysop: Ann Guilbeau. Voice: (714)963-6221.

Best Friends BBS. (714)964-0083, 300/1200/2400. 24 hrs., Multi-line, multi-user; chat-mode, public boards, on-line travel-tips & discounts, special events, pool parties and more! A dating/match-making/friendship board. Sysop: Joe & Ann. Voice: (714)647-7138.

Bits & Pieces Time BPT-Main. (714)630-8897. 300/1200/2400 24 hrs. No parity, full duplex. BBS determines baud rate by ret. key. Large software library for Commodore 64/128, Amiga & IBM. Sysop: Mike Dalton.

C. Itoh Technical Support BBS. (714)660-1698, N-8-1, 24 hrs., 1200. Free technical support for C. Itoh printers and terminals. Switch settings, printer drivers, utilities. Sysop: George Petronis.

Calsonic. (714)830-5958. Password=CII: Use real names. Sysop: Kerry Williams.

Cyborg BBS. (714)551-2974. 300/1200/2400. Shareware & public domain software for IBM and compatible computers.

DCASPRO-HUGHES RBBS. (714)732-6659. 24 hrs., 300/1200/2400. Federal government/multi SIGS/ virus info center/largest listing of BBS numbers for 714 area code. Sysop: John A Sprague, Sr. Voice: (714)732-3698 days.

Dial-Your-Match. (714)682-8763. Riverside. (714)739-8822. Buena Park. (714)751-4860. Santa Ana. (714)773-5326. Fullerton. (714)825-0901. Colton. (714)857-2470. Irvine.

Flight Deck (714)979-8333, 8-N-1, 24 hrs., 300/1200. For C-64/128 computers. Sysop: A.W.K.

French Connection. (714)858-8111. 300/1200/2400/9600. 16 multi-line BBS in Orange County. Dating service; 500 megs of software for users. Sysop: Stephen M. Cohen.

Fretwork. (714)974-7428. 300/1200 24 hrs. Punter protocol for file transfers. Commodore specific. C-TUG members's night - every Fri. Sysop: Jeff Griffith.

Happy Trails. (714)547-0719. 1200/2400 8-N-1 24 hrs. MS-DOS; Multi-user; email; Downloads; SIG's; On-line games Sysop: Don Inglehart.

IBM-PC BBS. (714)842-5851, 8-N-1, 2400.

Imperial Palace of DB. (714)860-0889. 1200 24 hrs. Commodore 64, 128.

MacUnderground. (714)846-8866. 24 hrs., 300/1200/2400. Macintosh only. News, reviews, apps., 80 megs online, updated weekly, full Mac support.

MEDCOM INFO BBS. (714)996-6666. 24 hrs., 300/1200/2400. Multi-user games, chat, computer art, PC-Pursuit access & info, news IBM-PC freeware/Shareware & mail. Sysop: Bob Reinecke.

Morrison Hotel. (714)752-0145 24 hrs., 300/1200/2400. 10 lines, interactive games and conversation. Conferencing, email, and matchmaking. Technical and trivial discussion. Running Skynet software.

Nebula 6. (714)595-6577. 300/1200/2400 8-N-1 24 hrs. Write for a free newsletter. P.O. Box 1071, Walnut, CA 91788. PC-Pursuitable. Sysop: Michael Quirino.

Network XXIII. (714)548-4836. 1200/2400/9600 8-N-1 24 hrs. On-Line registration; 1500+ files; conferences; online games. Sysop: Jim Brandon.

PartyLine. (818)842-3322, 300/1200/2400. 10 lines, on-ine since 1983, hundreds of subscribers. Largest download library around. Have fun, meet nice new friends.

PC Exchange. (714)956-5468. 1200/2400/9600.

PC-Lair. (714)839-9580 N-8-1, 24 hrs., 300/1200/2400. PC/DOS, MS/DOS, large PD software library. Sysop: Eric Drochner.

Software Exchange. (714)552-3515. 300/1200/2400 8-N-1 24 hrs. For IBM & compatibles. Over 3000 programs in 152 megs. Fastest-growing BBS in Southern California! Sysop: John Coon.

The Byte Zone. (714)491-7635. 300/1200 24 hrs. Serves all Tandy computers & many others, incl. MS-DOS. Features adventure help files, elect. mail, message bases, etc. Sysop: Franco Collino.

The Cheese Factory. (714)788-9894. 24 hrs., 300/1200/2400. Official BBS of the Moreno Valley Macintosh User's Group. Macintosh PD software library available for d-load. Sysop: Mike White.

The Consultants' Exchange BBS. (714)842-6348, 842-5851. Provides programmers, consultants, VARs, ISOs, ISVs, and others with the ability to contact each other. Sysop: Larry Dighera.

The End of the Line. (714)645-6581. 300/1200/2400 8-N-1 24 hrs. Running Wildcat BBS software. Pub. dom.& shareware for IBM & compatibles. Private/pub. message bases. Scorecast data files. Sysop: Bob Kelly.

The Grapevine BBS. (714)549-7886, 24 hrs., 300/1200/2400. 40 & 80 column support on WWIV BBS software. A new telecommunications related BBS. First online 8-8-88, 24 message forums, file transfers of communications related software for all major PCs.

The Meadows. (714)838-1569, 8-N-1 24 hrs, 1200 to 14,400 HST. Game board. 160 megs on a 286 AT. Sysop: Gene Hankins.

Toshiba BBS. (714)837-4408. 1200 8-N-1 24 Hrs. Toshiba laptop support.

TripWire TECHnologies (PCB). (714)964-1146. 1200/2400 24 hrs. Multi-lingual operations with 7 national echomail areas. (Beta testing PCBmail)Sysop: William Kidd.

Wellspring RBBS. (714)856-7996. 300/2400 M-F 5 PM-8 AM. S-S 24 hrs. Medical/AIDS/Software.

717

Dead Board. (717)677-9573. Sysop: Captain Trips.

800

APPLESIG on the Source. (800)336-3366, 300/1200/2400. International Apple users group with over 700 programs. Fee.

PC Pursuit. (800)835-3001, 300/1200/2400. Registration required.

805

Affection Connection. (805)499-7023/529-7311. 24 hrs., 300/1200/

2400. 5 lines, private open chat, message board, matchmaking, free public domain software. All computers welcome. Sysop: Ben Richards .Voice: (805)499-4625.

FUBAR Systems. (805)544-9234. N-8-1, 300/1200. Currently offers a complete UUCP package including mail, uucico and uuxqt, mews, and readnews. Sysop: Christopher J. Ambler.

Success BBS. (805)238-7359. 300/1200 24 hrs. Sysop: Larry Sarver

The Digital Dungeon. (805)683-2436. 300/1200/2400 8-N-1 24 hrs. Open System designed to be an open forum. Primarily a conversation system. Sysops: Jerry Ash, Doug Sander.

818

Affection Connection. (818)991-8261/704-8588. 24 hrs., 300/1200/2400. 5 lines, private open chat, message board, matchmaking, free public domain software. All computers welcome.

AMERICOM C.B.C.S. (818)967-3108, 10 PM-7 AM, 300/1200. Supports all computers. Mature users, 20 multi-topical subs; test information libraries, section for film/TV production, medical/nursing, home audio/video, photo, debate, religions, hobby, consumer help, HAM and more. On-line for over four years. Sysop: Mike L. Lewis.

DELOS. (818)242-1410. 2400 24 hrs. Lo-cost access or free ltd. use. Serving the Gay Community. 10 lines for chatting! Library & many public boards.

Dial-Your-Match #1. (818)842-6900. 300/1200 24 hrs. The original dating BBS on-line since 1981. Fill out a personalized questionnaire & join the fun! (818)247-6343. Glendale. (818)506-6300. N. Hollywood. (818)785-3498. Van Nuys. (818)845-5325. Burbank. (818)954-0790. Burbank.

Fantasy Plaza. (818)840-8066. On-line adventure game.

Hard Ball PC Board. (818)713-0420. 1200/2400 8-N-1 24 hrs. Programming conference specializing in Pascal. Huge P/D & Shareware Filebase for PC & compatibles. Sysop: The Umpire.

Home Loans BBS. (818)999-1501, 8-N-1, 24 hrs., 300/1200. Daily update of mortgage rates. Sysop: Online Motgage Services. Voice: (213)316-5508.

Job Line. (818)358-1647. The BBS dedicated to helping people find jobs. FREE! No membership required. Sysop: Daniel Bender.

KBBS. (818)886-0872, 994-0442, 506-4421. 8-N-1 300/1200/2400. 17 lines, LA's best Adult Social BBS. Free trial period, worldwide network, databases, USA Today news, group chat. Sysop: Dale Sys-Dude.

LA JOBS. (818)999-1501. Los Angeles' most extensive database of Eng./tech jobs openings. Email direct to employers. Service provided by Los Angeles employers. No agencies. Type GO JOBS upon entry.

Loan Line. (818)999-1501. Type GO LOAN upon entry.

Lynzie's Motherboard. (818)508-6482, 8-N-1 24 hrs, 300/1200/2400. 16 lines, group and private chats, large download library, email, 35 public forums, matching, local social events. Also: (213)650-0519, 659-1982, 390-3239; (818)989-3875, 547-0343.

Lynzie's Motherboard. (818)989-3875. 549-0343, 508-6482, 300/1200/2400/9600 8-N-1 24 hrs. Matching, group, and private chat system, local social events. S.F.V. Sysop: Lynzie Flynn.

MacLodge. (818)355-8040. N-8-1, 24 hrs., 300/1200/2400. Mac oriented Red Ryder Host BBS. Discussion, files, and on-line games. Running since December 1985. Sysop: Blake Chattaway.

Media Access Information Network. (818)769-8577. 8-N-1 24 hrs, 300/1200/2400. For the professional in the entertainment/communications industry. Over 80 databases, pub board section with professional moderators, on-line, off-line production research. Free business listings, chat. Sysop: William Hilliard. Voice: (818)769-0613.

Mysteria. (818)353-8891. 300/1200/2400. Occult & general text files, CP/M, Turbo Pascal. Sysop: Phil Hansford

Nature/Environment Area: The Glendale Litera BBS. (818)956-6164. Dedicated to the discussion of nature and environment topics. Access is free, but donations are accepted. Sysop: Douglas E. Welch Voice: (818)781-1460.

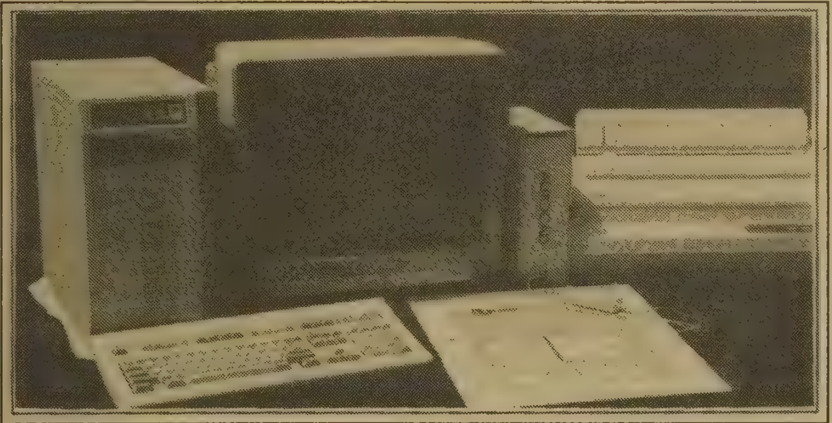
Open Mind BBS. (818)342-4601. Current and topical discussion that puts the others to shame. Sysop: Bill Greenland.

Oracle. (818)509-9681. 300/1200/2400 8-N-1 24 hrs. 9 phone lines. System password MICROTIMES for higher access. Free demo version of Oracomm BBS software. Sysop: Gary Young.

ORCHID. (818)999-1501. Direct access to employers. We are not a job agency. Type GO JOBS upon entry. Sysop: Mindey.

Plaza Party Line. (818)842-3322. 300/1200. Chat with 11 other callers. No hourly charges. Adult sections. Lots of women callers. Online since 1983.

Private Affairs. (818)998-7629, 8-N-1 24 hrs, 300/1200/2400. Adults only!



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The Bear's Lair. (818)988-6694, 300/1200/2400, 24 hrs. Macintosh oriented, 200 Mb online, multiple message sections. Sysop: Bruce Gerson.

The Board With No Name. (818)785-3340. 300/1200. A gay-oriented BBS. No hourly fees; no time limit w/ paid access. 16 lines.

The Consumer & Business Network. (818)360-4679. 24 hrs., 1200/2400. Arc files, business and financial info, classified ads, discussion, Mac files, messages & mail, newsbytes, on-line store, real estate, USA Today, Westlink Report & HAM radio, PC Pursuitable. Sysop: Kenneth R. Wilcox.

The Entry. (818)347-3862, 24 hrs, 300/1200. Lots to see. UL/DL, free. Have fun. Sysop: Kevin Howes. Voice: (818)347-2146.

The Ledge PC Board. (818)352-3620. 300/1200/2400/9600. All systems welcome, full support for IBM PC/AT compatibles.

The MOG-UR'S EMS. (818)366-1238, 24 hrs, 300/1200/2400/9600/14400 HST. Multi-ine, multiuser, large message base with 24 active SIGs, extensive file library with 26 file area, Netmail and echo, online since January 1981. Sysop: Tom Tcimpidis.

The "Other" Ball. (818)358-6968. N-8-1, 24 hrs., Adult love chat., str/gay dating database, IBM software, business files, PC-Pursuitable. Sysop: Michael Allen.

The Software Bank. (818)993-5516. 300 to 9600. Atari ST only. 65 megs. Node #95 of FNET. Exchg. messages & files w/users on other FNET BBS nationwide thru our network. Sysop: The Software Bank.

TUG-NET (Technical & User Groups Network). (818)882-6045. MS/DOS and CP/M supported. Voice: (818)957-4721.

Valley On-line Shopping Network. (818)772-4227. 300/1200 (soon to be 2400). Provides local businesses the opportunity of selling their products on line to local and national computer consumers. Sysop: BRAINS.

VICUG-BBS. (818)772-4227 N-8-1, 24 hrs., 300/1200/2400. See what is happening at VICUG speakers, demos, newsletter, (VICUG-RAM), disk bank, desktop publishing sub group, etc. Sysop: Linda Rohrbough. Voice: Harry Tischler, (818)997-6000.

Win Free Cash & Prizes. (818)908-9886, New BBS. Free to consumers. Everytime you call you can qualify for free cash & prizes. Voice: (818)908-9911.

900

Support, Inc. 1-900-860-HELP, 7 am–10 pm, Voice help with Macintosh problems. $2.00 for first minute, $1.00 for each successive minute. DOS help to be available soon. Sysop: Jeff Hellman.

916

24th Street Exchange. (916)451-7179. 300/1200/2400 8-N-1 24 hrs. Opus-based system. Free access. Lge. selection pub. domain files for IBM & compatibles. Special interest areas. Sysop: Don Kuhwarth/Laura Stua.

Adult Contacts. (916)338-4909. 300/1200/2400. 24 hrs., Where mature adults meet to socialize and to exchange ideas & information. On-line matching games, files, info bulletins, messages, and lots of FUN! We especially cater to the new female user. No minors or techno-babble allowed.

Apple Sac BBS. (916)781-6645. For Macintosh. Official board of Apple Sac. Sysop: Tim Dugas.

Apple Sac BBS. (916)966-3620, For Apple II, IIe, IIc, and IIGS. Official Apple II board of Apple Sac. Sysop: Apple Lew.

Changewinds HST. (916)923-3862. 24 hrs., 300/1200/2400/9600. This system specializes in keeping the highest quality files online. TradeWars 1000 v9.03, 18 MHz system, many echomail conferences. Sysop: Ron Deaver.

CompuHelp. (916)786-3923. 24 hr database-bulletin board system for the Blind and Visually Impaired. Sysop: National Association Of Blind And Visually Impaired Computer Users, Inc.

Dial-Your-Match. (916)275-1265. Redding. (916)736-0739. Sacramento.

Hackney's Hideout BBS. (916)961-1042. 1200/2400 8-N-1. Includes AT&T users conference. Sysop: Rich Hackney.

MacNexus BBS. (916)448-5348, 8-N-1, 24 hrs, 2400. Message portion open to general public. Sysop: Bill Davies.

Night-line Network Central. (916)427-1107, 300/1200, 8:00 PM to 8:00 AM daily. Forum for individuals, clubs and organizations that want to network nationally with others. Sysop: Eric Thomas.

Phoenix Landing BBS. (916)966-8243. 300/1200/2400. Macintosh oriented but many other computers are supported. File areas for Mac and other computers. Supports echomail conferences including ECHOMAC and BAYMAC.

See page 104 for coupon to submit your free listing.

ASSOCIATIONS

ACCPAC Accounting SIG. Meetings: 2nd Wednesdays at 7 pm. Users, CPAs, consultants, and other business people interested in sharing information on Computer Associates' ACCPAC Accounting software. Call Donna Miller, (213)393-0244.

California Educational Computing Consortium (CCCE). For information, write Herb Garrett, Long Beach City College, 4901 E. Carson ST., Long Beach, CA 90808.

Computer Professionals for Social Responsibility. Meetings: Most third Wednesdays, 7:30 pm, UCLA. CPSR/LS focuses on computer system risk and reliability and on privacy and civil liberties issues.

Independent Computer Consultants Association (ICCA). Meetings: Monthly. Call: Los Angeles, (805)253-1973; Orange County, (714)852-6164; San Diego, (619)294-6550.

International Blind Users Group (I-BUG). Part of the National Association of Blind and Visually Impaired Computer Users. Membership consists of access to CompuHelp, a 24 hour on-line database/bulletin board system, and receiving CompuHelp On-Disk, a modem database bulletin board system on two double-sided disks. Call: (916)783-0364 or 645-8036.

LA Real-Time Problem Solvers. Meetings: 4th Saturdays, 10 am to 1 pm, Hawthorne Public Library, 12700 S Greviellea Ave., Hawthorne. We speak A/D, SBC, RISC, FORTH, and C. We support real-time, real-world hardware and software problem solving, such as firmware, device drivers, instrumentation and very smart toasters. Call: (213)371-0589.

National Account-A-Call Users Group (AACNUG). Meetings: First one held in June. Call: Shelly Schoenberger, 1-800- 447-TUMS.

North Orange County Computer Club (NOCCC). Meetings: Monthly on Sundays, Chapman College near downtown Orange. Help for beginners, SIGs, educational activities, monthly newsletter, Open to any computer user. Call: (714)998-8080.

Realtor Microcomputer UG (RUG). Meetings: 4th Thursdays, 7 pm, Pasadena BOR, corner of Orange Grove and Los Robles, Pasadena, CA.

Westside Computer Users and BBSers Group. Meetings: Last Saturdays, 6:30 pm, Flakey Jake's restaurant, 2347 S. Sepulugda Blvd. @ Pico. Call: Dave Harrison, (213) 857-5800.

USER GROUPS

AMIGA

Amiga Friends. Meetings: 3rd Sun. Rancho Santiago College, Rm R-124, 17th & Bristol, Santa Ana. Call for current meeting info: (714)775-7237 (24 hrs.)or write: P.O. Box 4186, Huntington Beach, CA 92605.

Amiga Special Interest Group. Meetings: 1st Sunday except holidays. Chapman College, 333 N. Glassell, Orange, CA. Amiga SIG is part of the North Orange County Computer Club, a thousand member organization together 12 years.

Amiga User's Group Of Long Beach. Meetings: 3rd Sundays, 1 pm, Mid-Cities National Bank, Lakewood and Artesia, Bellflower. Tech, Beginners, Video/Graphics SIGs. (213)422-8226/432-2088.

Bits & Pieces Amiga Group of Anaheim. Meetings: each Tues. 6:30-10 PM 1130-A North Kraemer Blvd., Anaheim, CA. DOS Classes, tech. help & more. BBS: (714)630-8897.

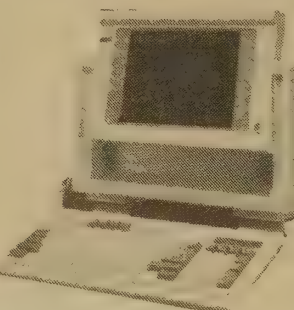
LAAUG-Los Angeles Amiga Users Group. Meeting: 3rd Wednesdays @ 7:30 PM. Veteran's Auditorium at Overland Ave. & Culver Blvd. Many SIGs, Rookie, music, video, monthly PD disks. Call: (213)858-8073.

Pacific Computer Club. Meetings: 2nd Thurs. 7 PM 391 S. Madison, Pasadena, CA.

San Fernando Valley Amiga Users Group (SFVAUG). Meetings: last Tuesdays, 7 pm, The Meeting Room, Fallbrook Mall, 6507 Fallbrook Ave, Canoga Park. Call: Tony, (818)985-0476.

South Bay Amiga Dudes. Meetings: 3rd Thursdays, 7 pm, Redondo Beach Blvd., Lawndale. Call: Charlie Breene at (213)540-2834.

South Orange Commodore Klub (SOCK). Meetings: 3rd Saturday 9:00 A.M. Union Savings, 23688 El Toro Road, El Toro, CA. For Commodore 64/128 users and Amiga users. One-hour general meeting is followed by



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Microscience HH-1050 HD (44MB, 28ms)	$365
Seagate ST-4096 Hard Disk (80MB, 28ms)	$575
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WD-1003MM2 HD/FDC Controller AT (2-1)	$115
DTC-5287 HD/FDC Controller AT (RLL)	$139
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Super VGA 8 (5100, 800x600)	$165
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Game Port for XT/AT	$14
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8087, 80287, 80387 Math Co-processor	CALL
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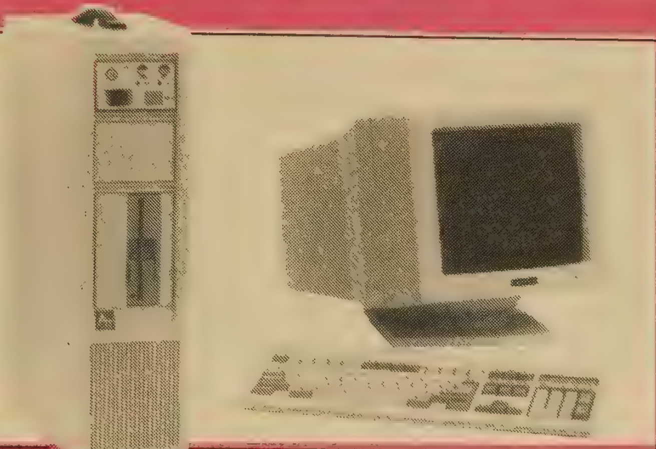

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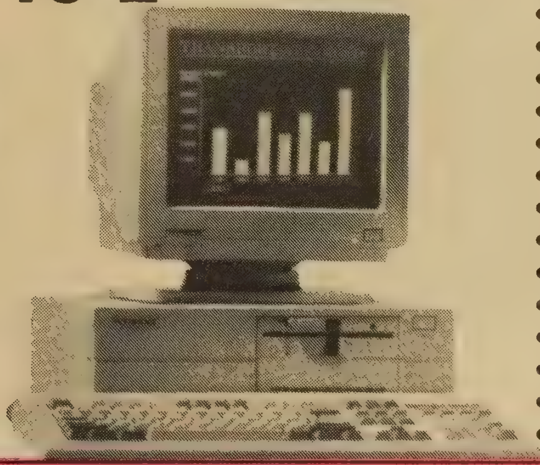

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- IBM AT-286 Compatible
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- WD Hard/Floppy Controller
- 200 Watt Power Supply
- AT 3 Opening Case w/reset buttons
- Clock/calendar on board
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Micropolis 1325A	549

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Amstrad Users Group, USA. Meetings: Free mail and phone support for PCW. 12741 Matteson Ave. #3 LA 90066. (213)397-7981.

APPLE

Apple/Valley Computer Club. Meetings: 2nd Wednesdays, 7:30 pm, Valley Presbyterian Hospital, meeting room #3. Discussion on Apple, Mac, Amiga, IBM. BBS: (818)782-6471. Up loading/down loading. Visitors welcome. Eamon games, misc. Voice: (818)988-1752.

Original Apple Corps. Meetings: 2nd Sun. 12:00 Noon 3rd Floor Community Room, Santa Monica Mall. First Apple group ever. SIGs for AppleWorks, Telecomm, Educators, Macintosh. Call Fred Duffy at (213)396-5515.

Tri-City Apple Users Group. Meetings: 3rd Thurs., 7:00 PM, 50 N. Hill Ave., Pasedena. Call (818)846-6682. Friendly Apple II experts.

ATARI

Atari Computer Association Of Orange County. Meetings: 2nd Sun. Rancho Santiago College, Room W101, Santa Ana. BBS: (714)540-7378.

North Orange County Computer Club Atari ST SIG. Meetings: First Sundays, Chapman College in Orange. (714)552-5185, or Bill, 633-4665, or Mac, 751-3090.

Santa Clarita Valley Atari Computer Enthusiasts (SCVACE). Meetings: 1st Thurs. 7PM Mint Canyon Moose Lodge, 18000 W. Sierra Hwy, Canyon County. 8-bit group. Atari ST special group now forming.

South Bay Atari Computer Enthusiasts (SBACE). Meetings: 2nd Tuesdays, 7:30 pm, Lomita VFW Hall, 1865 W. Lomita Blvd., Call: Alan, (213)542-7870.

West LA Atari Users Group. Meetings: 1st & 3rd Wednesdays, 7:30 pm, The Federated Group store, Santa Monica. Call: Bill, (213)559-2349.

CLIPPER

Fresno Clipper User Group. Meeting: 4th Thursdays, 7:00 pm. Call: John Rogers, (209)251-7527.

Los Angeles Clipper User Group. Meeting: 4th Wednesdays, 7:30 pm. Call: Theresa Padilla, (213)452-0370.

Orange County Clipper User Group. Meeting: 4th Thursdays, 7:00 pm. Call: Steve Hilton, (714)847-7123.

San Diego Clipper User Group. Meeting: 4th Tuesdays, 7:30 pm. Call: Mick Keily, (619)569-8234.

Valley Clipper User Group. 7:30 pm. Call: Igor Lelchitsky, (818)716-8790.

COMMODORE

Bits & Pieces Commodore Computer Group of Anaheim. Meetings: each Tues 6:30 PM 1130-A N. Kraemer Blvd. (Kraemer & La Palma), Anaheim. Offers public domain software, demonstrations, interactive training on your computer. $33 annual dues.

Commodore 64 Software Users Group. For new Commodore owners. One on one help. Call (714)531-2977 for info.

Commodore Helpers Of Long Beach. Meeting: 2nd Saturdays 9 am, Mercury Savings And Loan, 4140 Long Beach Blvd. Long Beach C-64 & C-128. Call: (213)424-0508.

C–128 West Commodore User Group. Meetings: 2nd Tuesdays, 7 pm, McKinley School auditorium, Santa Monica Blvd. (except during summer). Call: 6–9 pm, John Calhoun, (818)331-1589.

Mother Lode Commodore Users Group. Meetings: 2nd & 3rd Thursdays. Calaveras County Water District Board Room. Supports the Commodore PET, VIC, 64, Plus/4, C-16 & 128.

Nebula 6. Call BBS for more info & online glance at what group offers. BBS (714)595-6577 300/1200/2400. Write for info: P.O. Box 1071, Walnut, CA 91788.

OKOK Computer Users Group. Meetings: 2nd Wed. 7-9 PM Altadena Public Library, 600 E. Mariposa. Call (818)794-3243. Serves, Osborne, Kaypro, Commodore C128, PCs and compatibles and both MS-DOS and CP/M operating systems.

Orange County Commodore Technical Users Group (C-TUG). Meetings: 4th Sun. 11:00 AM, 4th & Tustin, P.O. 1497, Costa Mesa, CA 92628. Newsletter; 2 BBS's; door prizes; demos, raffles, speakers, (714)750-3003.

Pacific Computer Club. Meetings: 2nd Thurs. 7 PM 391 S. Madison, Pasadena, CA.

Pasadena Commodore Computer Club. Meetings: 1st and 3rd Weds. 7:00 PM Circadian Room, Pasadena City College Cafeteria. Colorado Blvd & Hill, Pasadena. Call (818)447-2212 after 2:30 PST or write P.O. Box 163, Arcadia, CA 91006. Supports C64 and 128 machines.

San Fernando Valley Commodore User Group. Meetings: 4th Wednesdays, 7:30 pm, Union Federal Savings, Sherman Way and Sepulveda Blvd., Van Nuys. (818)342-0012.

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25 MHz	2030	2460	2735
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- 101 Enhanced Keyboard

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		640x480	800x600
12 MHz	995	1425	1700
16 MHz	1125	1555	1830
20 MHz	1195	1625	1900

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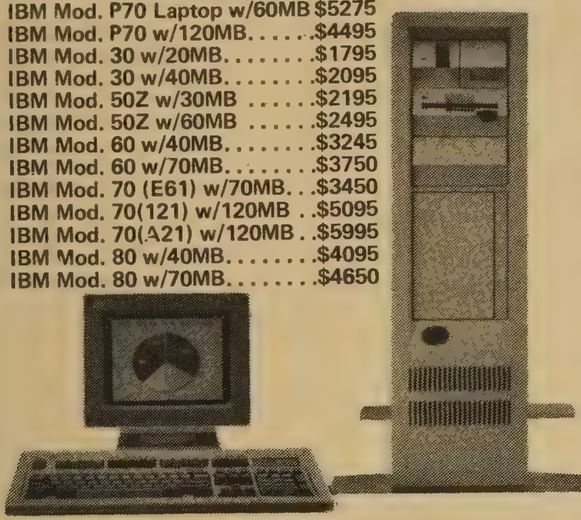

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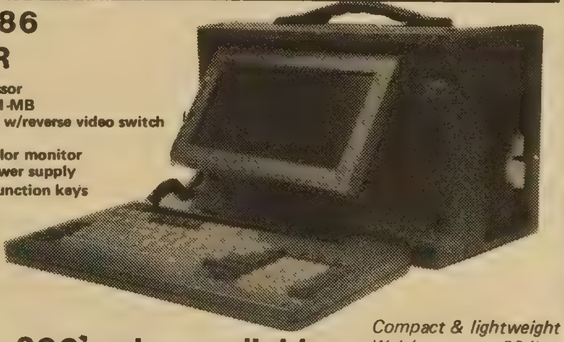

386's also available

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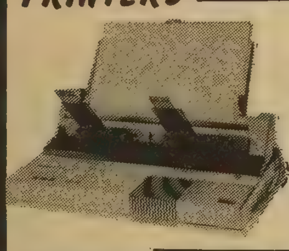
PRINTERS



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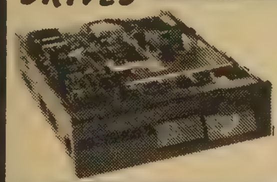

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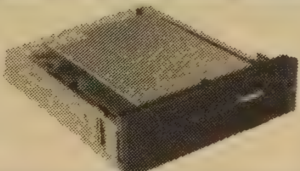
Teac, Fujitsu, Toshiba

360K	1.2MB
$69	$89



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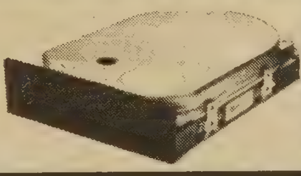

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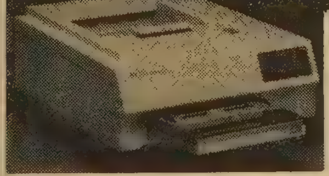

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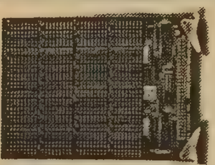

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Card w/ zero K memory	$89
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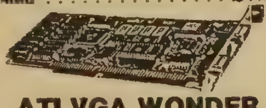

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RS-232 serial card.	$29
Parallel printer card.	$25
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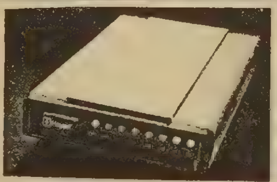
Everex EMS memory card	$129
Exima VGA card 800x600.	$225
Exima VGA card 1024x768	$325
Intel Above Board w/512K	$425
Clock card	$19
Gamer card	$15
Floppy controller for 360K, 1.2MB, 720K, 1.44MB drives.	$39



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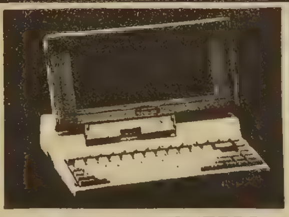
Everex 2400 internal	$159
Everex 2400 external.	$189
Hayes 1200 external	$275
Hayes 1200B internal w/Scom	$275
Hayes 2400 external	$415
Hayes 2400B internal w/Scom	$415
Digitan Hi-IQ 2400B Internal	$99
Smart One 1200B Internal.	$69
Smart One 2400B Internal.	$135
Smart One 2400 External	$149
2400B int, for Toshiba laptop	$369



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Toshiba T1600, 12MHz, 40MB	$3470
Toshiba T3200, 12MHz, 40MB	$3295
Toshiba T5100, 16MHz, 40MB	$3950
Toshiba T5200, 20MHz, 40MB	$4595
Bondwell 286 w/20MB.	$2195
Zenith SuperSport, 20MB.	$2975
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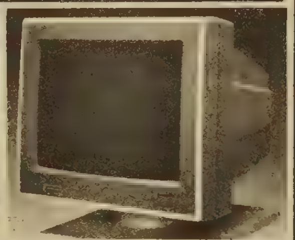

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Valley West dBASE Users Group. Meetings: 3rd Mon. 7:00 PM Blue Cross Of California, 21555 Oxnard St., Woodland Hills. Call (818)789-0723 or write P.O. Box 16971, Encino, CA 91416.

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DECUS Rainbow Pacific PC-LUG. Meetings: 2nd Wed. 7:00 PM Digital Equipment Corporation, 6101 W. Centinela, Ave., Culver City. Digital Equipment Computer Users Society. Free to DEC users. Call Karen Danforth (818)787-8736 or write P.O. Box 2278, Van Nuys, CA 91404.

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Pacific Computer Club. Meetings: 2nd Thurs. 7PM 391 S. Madison, Pasadena, CA.

Pasadena IBM Users' Group. Meetings: 3rd. Wed. CalTech, Bridge Bldg., Rm. 201. Call Steve Bass, (818)795-2300.

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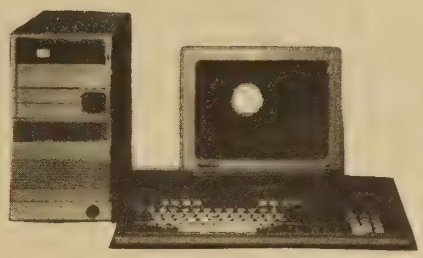

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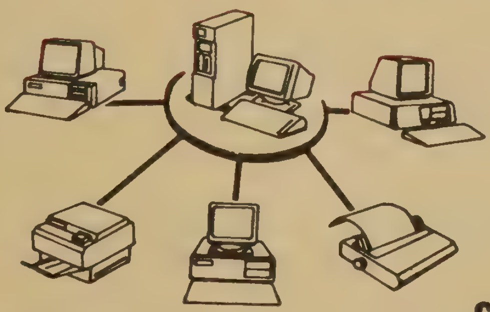

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VICUG (Valley IBM/Compatible Users Group). Meetings: 4th Fridays, 7:30 pm, Mercury Savings Bank, 14801 Ventura Blvd., Sherman Oaks. Call: Harry Tischler, (818)997-6000.

VICUG–DTP (Valley IBM/Compatibles Users Group). Meetings: 7:30–10:00 pm, Valley Plaza Recreation Center, 12240 Archwood St., North Hollywood, CA. Call: Harry Tischler, (818)997-6000.

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Conjo Ventura Macintosh Users Group, Inc. Meetings: 1st Thursdays, Thousand Oaks Public Library, 1401 E. Janss Road, Thousand Oaks. Call: Ed or Ellie Darling at (805)584-8733.

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MacValley. Meetings: 3rd Tues. 7:30 PM Burbank High School Cafeteria at Burbank Blvd. and Third St. Call David Lagerson, (818)998-5546 or write P.O. Box 4279, Burbank, CA 91503.

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SBAMUG (South Bay Apple Mac User Group) Meetings: Last Wednesday of each month, 7:30 PM, Ticor Title, 4240 Artesia Blvd., Torrance. Call (213)316-7738.

Santa Barbara Macintosh Users Group. Meetings: First Tuesdays, @ 7 PM, Goleta Library. Publishes a newsletter with reviews, offers advice, support for Mac users, discounts at local dealers. Call: Morris Herman, 987-5511, x 2083.

West Orange County Macintosh Users Group (WOCMUG). Meetings: Last Tuesday. F & M Bank in Rossmore Center, Orange County, CA.

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Los Angeles - Wilshire Color Computer Users' Group. Meetings: 2nd Sat. 12:30-5:30 PM Felipe de Neve Library's Comm. rm., 2820 W. 6th St., LA, CA.

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Brea 99'ers User Group. Meetings: 1st Mondays, 7:30 pm, Mercury Savings 1001 E. Imperial Blvd., La Habra, CA. (714)871-3405.

LA 99er Computer Group, 4th Wednesdays, @ 7:15 PM, Torrance Public Library, Torrance Blvd. @ Madronna. Call: Teresa Masters, (213)271-6930.

San Fernando Valley TI-99/4A User Group. Meetings: 2nd Wed. 7:30 PM Doctor's Conf. Rm., Sherman Oaks Hospital, 4929 Van Nuys Blvd. Call for info: (805)379-2937. Or write: SFV 99ers, 633 Hollyburne Ln., Thousand Oaks, CA 91360.

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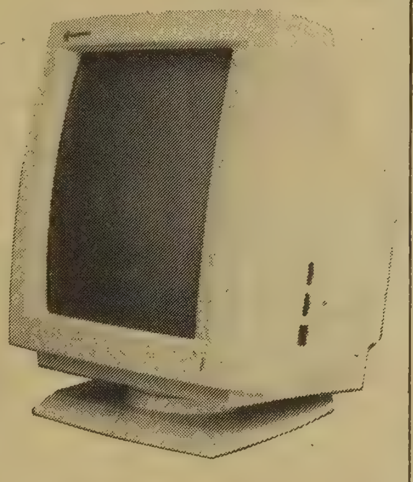

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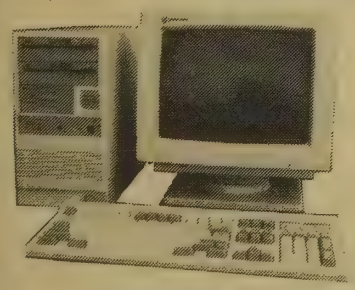

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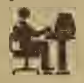

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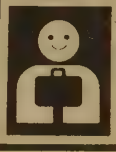

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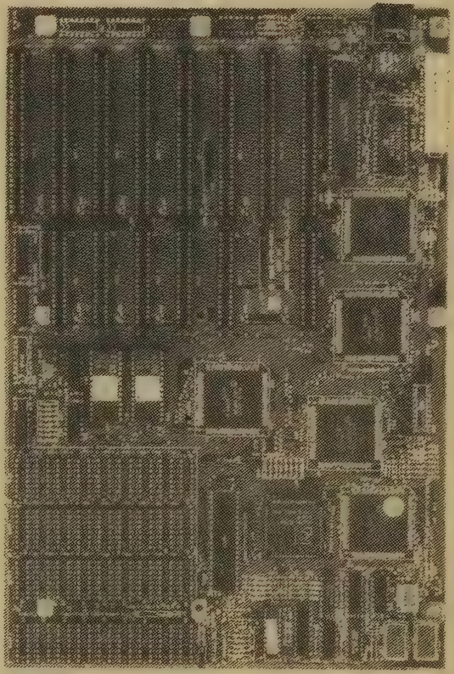

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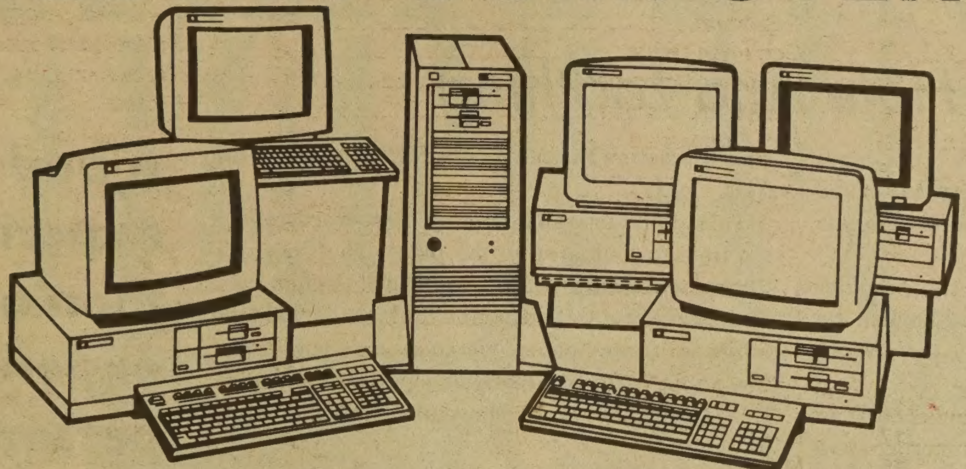

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The big question everyone asks is: Are computer stores a shadow of what they once were back in the old days of the Byte Shop and the pre-lawsuit ComputerLand chain?

It seems that nowadays the most talked about (and beloved) chain is Egghead! Whatever happened to those old Softwaire Centers that were a spin-off of Ashton-Tate? What about the Byte Shop?

It's no coincidence that the old Softwaire Centers fell apart after George Tate of Ashton-Tate died. It's no coincidence that ComputerLand is a far different chain than it was when Bill Millard was in control. Most great corporations reflect the personality of the strong individuals who run them. Once the reins are turned over to trained "professionals," all hell breaks loose.

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My favorite example is McDonald's hamburger stands. Since the death of founder Roy Kroc, the stores aren't nearly as efficient or as spit-and-polish as they once were. I went into my local McDonald's the other day and, despite the fact that there were no other customers, I waited about two minutes to get someone to the counter. I ordered two regular hamburgers and one regular french fry. The order was taken and I was told to wait. It turned out that there were no hamburgers available. NO HAMBURGERS, can you imagine? As I waited for the hamburgers to arrive, the french fries got depleted. Now there were hamburgers, but I had to wait for the fries.

This ludicrous wait for the simplest of orders gave me time to look around the place. The floor was littered with chunks of lettuce and dead french fries. There were rags stuffed behind the bins that hold the burger-wrapping paper. The manager's pants were low-slung. He looked like a fat construction worker. Heads would have rolled in years past had Roy Kroc been alive.

Then again, it's easy to tell people how important it is for a restaurant to be spotless and efficient. It's another problem to make them become neat freaks. MBAs hired by McDonalds learn the importance of cleanliness. The managers learn it too. But what good does it do? I, for example, know that I'm better off in a well-organized office—everything in its place. But it doesn't mean that I can personally (and like a fanatic) put everything in its place like I know I should. Talk is cheap when it comes to acting like a nutball.

We all pay lip service to theories. We see a small scrap of paper on the floor that needs to be picked up and tossed out. We step over it. We ignore it. A trained MBA hired to run a division of McDonald's is no different. That is, unless he's worried that Roy Kroc is going to fire him. But with no Roy Kroc, no problem. Same goes for the disappearance of George Tate, Bill Millard, and other strong personalities in the computer retailing game. MBAs are pretty normal people by comparison. So suddenly, the once super-clean franchise gets a little shoddy. Things start to decay. The image is held up by the independent franchisees who were clean freaks from day one.

It's obvious that as much as we dislike the stern Roy Krocs of the world—the picky-picky-picky kind of über-boss—we always admire the results they achieve. The personality of any corporation is always a top-to-bottom reflection of the guy sitting in the top chair. If a company has a snarky secretary in some branch out in Timbuktu, it's because the top guy has surrounded himself with such creatures. She's a part of the personality of the company—a tentacle. I figure the big boss is a real jerk when I run into such representatives. Note that I have no qualms making this generality, having worked with (and for) many large corporations in my life.

In retailing, the public at large experiences the phenomenon. In retailing, there seem to be two basic schools of thought—one more successful than the other. The first group adores their customers and caters to them like there is no tomorrow. This is the group of successful retailers who say that the customer is ALWAYS right. They never fail because they are service-oriented and they love and need their customers.

The second group hates the public, hates the customer. Despise may be a better word. They do business with the public reluctantly. They think they are doing the public a favor by being there. They distrust the customer and would prefer never to see them. All this hatred is reflected in every minuscule aspect of their stores, from the layout to the personnel.

A bad retail experience is more than a bad experience. It's a personal insult. The owner of the company, although he doesn't know you, thinks you are a complete jerk. The joke of it is, if you do business with a company that treats you this way, then you are a complete jerk, so he's right.

Needless to say, the second group never does as well as the first, unless they are part of a monopoly, or unless they're selling something nobody else has. Even so, this bad attitude catches up to these jokers eventually.

Returning to the notion that the hateful and arrogant attitude toward the customer is nothing but a stem-to-stern reflection of the top guy's personality towards the people with whom his company must do business, then you have to realize that a bad retail experience is more than a bad experience. It's a personal insult. The owner of the company, although he doesn't know you, thinks you are a complete jerk.

The joke of it is, if you do business with a company that treats you this way, then you are a complete jerk, so he's right. Unless you feel this way about yourself, do business instead with the store that gives you attentive and caring service. A place where the customers—YOU—are always right. ■

John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine and MacUser, considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.

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